

HEALTH AND SAFETY PLAN

MASTER METALS, INC. SITE

Cleveland, Ohio



PREPARED BY:



JANUARY, 2003

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1.0 INTRODUCTION

This document describes the health and safety guidelines developed for remediation activities at the Master Metals, Inc. Cleveland, Ohio Site, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be documented using the form in attachment A and included in Attachment A. Where appropriate, specific OSHA standards or other guidance will be cited and applied.

All work practices and procedures implemented on site must be designed to minimize worker contact with hazardous materials and to reduce the possibility of physical injury. All work will be performed in accordance with applicable Federal 29 CFR 1910, 1915 and 1926 Health and Safety Regulations.

The purpose for this site-specific Health and Safety Plan (HASP) is to set forth, in an orderly and logical fashion, appropriate safety procedures to be followed during on-site remedial activities at the Master Metals, Inc. Cleveland, Ohio Site by ENTACT & Associates, LLC.

ENTACT's mission is to provide cost effective and timely environmental solutions, but to do so while maintaining the industry benchmark for health and safety on each project. With this as our goal, the following safety and health program will be implemented to address remedial action activities conducted at the Master Metals, Inc. Cleveland, Ohio Site.

During remediation activities, ENTACT will maintain an on-going safety process and therefore will continually instruct, promote and prepare all associates for their positions. It is through this work process that ENTACT will achieve a safe work environment.

"Safety is a state of mind"; therefore all associates have been encouraged to possess a positive attitude toward safety. ENTACT has educated, trained and enforced safety on all projects to date and will continue to stress the importance of proper health and safety procedures on the Master Metals, Inc. Cleveland, Ohio Site. As part of this dedication to safety, daily safety meetings will be held at the start of each work day to ensure that all personnel understand site conditions and operating procedures, to ensure that personal protective equipment is being used correctly and to address worker health and safety concerns.

1.1 SITE SAFETY PLAN ACKNOWLEDGMENT

The ENTACT Field Project Manager (FPM) or a designated representative shall be responsible for informing all individuals entering the exclusion zone or decontamination zone of the contents of this plan and ensuring that each person signs the Safety Plan Acknowledgment Form in Attachment J. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on-site and the policies and procedures required minimizing exposure or adverse effects of these hazards.

2.0 SITE BACKGROUND AND SCOPE OF WORK

2.1 SITE INFORMATION

The MMI Superfund Site (the "Site") covered under the AOC includes the former MMI lead facility (the "Facility") located at 2850 West Third Street, Cleveland, Cuyahoga County, Ohio and the surrounding contaminated residential property at 1157, 1159 and 1167 Holmden Avenue (the "Holmden Properties") where lead-impacted material from Master Metals was deposited as fill (USEPA, 1999). The site is situated in Township 7 North, Range 12 West, Section 17, ¼ NE, ¼ SW, ¼ SW, with coordinates obtained from the Facility Index System (FINDS) listed as 41 degrees, 28 minutes, 26 seconds latitude and -81 degrees, 40 minutes, 31 seconds longitude.

The Master Metals Inc. (MMI) property is a triangular-shaped parcel encompassing approximately 4.3 acres in the "flats" area of downtown Cleveland, a heavily industrialized sector of the city. The site is bordered on west by rail yards owned by the Baltimore & Ohio (B&O) Railroad, the east by West Third Street and B&O railroad tracks and on the south by a dead-end road and an abandoned industrial property. LTV Steel owns the property to the south and north. The Cuyahoga River is located approximately 1,250 feet east of the facility and flows north toward Lake Erie (ENTACT, 1999). An athletic field and playground are situated approximately 1,000 feet to the west. The nearest residential property to the former facility is approximately 2,000 feet to the northwest (USEPA, 1999).

Major site features, prior to a 1997-1998 time-critical removal (TCR) action, included an office building, a secondary lead smelting furnace building, two large brick baghouses, the roundhouse building, storage buildings, material storage bins and boxes, and an above-ground storage tank farm (ENTACT, 1998). All buildings, except for the roundhouse and the attached office building in the northern corner of the property, have been razed as part of the Phase I TCR (ENTACT, 1998) and all remaining feedstock and debris materials were decontaminated and/or treated and disposed of off-site as either special waste or as hazardous waste (ENTACT, 1998). The MMI facility property is currently vacant with the exception of the roundhouse, and the majority of the land surface covered with concrete or asphalt except along the site boundaries.

Stormwater drainage is directed toward one of five on-site stormwater catch basins that connect to the combined sewer system operated by the Northeast Ohio Regional Sewer District (NEORS) (ESC, 1991). Topographic maps suggest that the direction of groundwater flow and surface water flow in the vicinity of MMI is to the northeast toward the Cuyahoga River (ENTACT, 1999).

2.2 SCOPE OF WORK

The removal action includes the following tasks:

- Clear and grub areas requiring excavation of all trees and either chip and mulch trees or dispose of off-site.
- Establish a coordinate grid system along the perimeter of the property outside the fence line and in on-site areas where excavation is required.
- Excavation of lead-impacted on-property soils that are not under concrete or the cover system, nor addressed during that Phase I TCR, and off-site soils along the western, eastern and southern perimeter of the MMI facility, that exceed the RBRG of 1,000 mg/Kg or until historic slag fill

material is encountered, whichever comes first. XRF screening technology will be used to guide depth of the excavations during removal.

- Confirmatory soil sampling from the excavation floor in grids where the excavation was terminated prior to reaching the historic slag fill material to confirm that all soils that are above the cleanup level have been excavated and removed.
- Backfill all excavated areas determined to have met the RBRG or have reached historic slag fill with clean imported fill material that has been approved for use based on analytical results.
- Stabilization of excavated on-site and off-site impacted soils to achieve a Toxicity Characteristic Leaching Potential (TCLP) value of less than 5.0 mg/L lead that will meet the applicable LDRs for contaminated soils (<7.5 mg/L) and render the material nonhazardous (<5.0 mg/L) for on-site placement and consolidation.
- Verification sampling of treated soils using TCLP lead analysis to verify the material has been rendered non-hazardous for lead prior to on-site placement as grading material over the existing concrete.
- Placement of all treated soils, including stockpiled soils from the Holmden Properties Removal Action, over the existing concrete surface as grading material for consolidation beneath a 4-inch thick asphalt containment cover, in accordance with the AOC and revised SOW.
- Recondition existing concrete surfaces not under the asphalt containment cover by sealing any significant cracks that extend through the concrete surface, followed by scarification or encapsulation of the concrete surface, in accordance with the SOW.
- Removal of any existing solid waste including Investigative Derived Waste (IDW) from previous or current removal actions.
- Air monitoring and implementation of dust suppression activities during the removal action.

2.3 RESPONSIBILITIES

2.3.1 FIELD PROJECT MANAGER (FPM)

The Field Project Manager, as the on-site Field Manager for ENTACT, has the responsibility for fulfilling the scope of work. The Field Project Manager must oversee the project and ensure that all technical, regulatory, and safety requirements are met. The ENTACT Field Project Manager will coordinate with the Site Safety Officer in the planning and implementation of all safety programs. All subcontractors will be given site-specific orientation. However, each subcontractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regards to health and safety, the following procedures shall be followed:

Attempt to resolve the issue on-site. If the issue cannot be resolved, on-site personnel shall consult ENTACT's Health and Safety Director for assistance and the specific task operation in dispute shall be discontinued until the issue is resolved.

2.3.2 HEALTH AND SAFETY DIRECTOR (HSD) AND SITE HEALTH AND SAFETY OFFICER (HSO)

The ENTACT Site Safety Officer will be assigned to the site with functional responsibility for implementing the Site Health and Safety Plan as it applies to ENTACT. The ENTACT Health and Safety Director will conduct site audits.

Specific duties of the Health and Safety Director and Officer will include:

- Assume responsibility for health and safety of ENTACT personnel.
- Document safety problems.
- Supervise decontamination of personnel and equipment.
- Ensure monitoring equipment is calibrated/operational.
- Conduct personal air monitoring on all ENTACT personnel as outlined in 29 CFR 1910.120 (h) (4) and this Plan.
- Perform respiratory fit tests.
- Inventory/inspect PPE prior to personnel entries.
- Prepare summary letter of personal air sampling results.
- Select protective equipment based upon chemical properties, and air sample results.
- Discontinue operations if safety concerns are not addressed.
- Prepare and maintain OSHA Log within 3 days of accident.
- Ensure that all ENTACT personnel are fit for duty.
- Inspect first aid kits/fire extinguishers/SCBA.
- Responsible for health and safety training and recognition.
- Report and investigate all accidents and near miss accidents.
- Coordinate safety orientation as well as daily safety meetings.
- Work with the Field Project Manager daily regarding work activities.
- Prepare written requests for modification of the Health and Safety Plan to the Safety Director of ENTACT, group representative, and the USEPA.

2.3.3 FIELD CREW

- Report any unsafe or potentially hazardous conditions to the FPM or the HSO.
- Maintain knowledge of the information, instructions, and emergency response actions contained in the HASP.
- Comply with rules, regulations, and procedures as set forth in this HASP.
- Prevent admittance to the work site by unauthorized personnel.

2.4 KEY PERSONNEL

Principle Contractor:

ENTACT & Associates, LLC.
1360 N. Wood Dale Rd., Suite A
Wood Dale, IL 60191
630/616-2100

ENTACT Project Coordinator
Mike Stoub

ENTACT Field Project Manager (FPM)
Bob Ainslie

ENTACT Health and Safety Officer (HSO)
Matt Petrilli

ENTACT Health and Safety Director (HSD)
Edgar Longstreet

2.5 PLAN REVISIONS

The procedures presented herein are intended to serve as guidelines. They are not a substitute for the sound judgement of on-site personnel. Work conditions may change as the project progresses. As appropriate, addenda to the plan will be provided by the Health and Safety Officer. Additional field tasks with unique hazards or risks may be added to this plan. ENTACT's Health and Safety Director, USEPA CERCLA Remedial Project Manager and Master Metals, Inc. Project Coordinator will approve all changes.

3.0 HAZARD EVALUATION

3.1 PHYSICAL HAZARDS

Physical hazards associated with excavation, earthmoving, foundation demolition, debris removal, and other construction activities pose an equal or greater potential for injury at this site than chemical exposure. Physical hazards can be posed by:

- Underground/overhead utilities
- Heavy equipment
- Trenching/excavation
- Noise
- Weather
- Slip, trip, and fall
- Fire Protection

Injuries that are possible from these physical hazards can range from simple slip-trip-fall types of accidents to casualties, including fatalities due to moving and/or rotating heavy equipment or electrocution. Injuries resulting from physical hazards can be avoided through the adoption of safe work practices and employing caution when working with machinery or around utilities and excavation areas.

All field personnel shall be conscious of their work environment and should notify the Field Project Manager or Health and Safety Officer or other appropriate supervisory personnel of any unsafe conditions. The Field Project Manager or Health and Safety Officer will ensure that all site workers are informed of any physical hazards related to the site. Each of the above mentioned physical hazards are discussed below.

3.1.1 UNDERGROUND/OVERHEAD UTILITIES

Before heavy equipment is utilized, all utilities (i.e., electricity, natural gas lines, water lines, sewer lines, etc.) will be identified. Utilities located in the excavation area will be disconnected and verified or marked and discussed in the daily safety meeting prior to work beginning.

3.1.2 HEAVY EQUIPMENT

Operation of heavy equipment in excavation/earthmoving or concrete demolition activities presents potential physical hazards to personnel. Personnel protective equipment (PPE) such as steel-toed shoes, safety glasses or goggles, hearing protection, and hard hats should be worn whenever such equipment is present. Personnel should at all times be aware of the location and operation of heavy equipment, and take precautions to avoid the blind sides of the equipment operation. No one will travel within the swing radius of the equipment. Heavy equipment will be inspected daily.

3.1.3 TRENCHING/EXCAVATION

Trenches and excavations may pose a physical hazard to site personnel. Trenching and excavation work is not anticipated to be over 3 feet deep. All trenching and excavation work shall comply with the requirements of 29 CFR 1926, Subpart P. Some requirements for safe trenching are:

- Whenever possible workers will not go into trenches or excavations.
- Any trenches, which exceed five (5) feet in depth, must be shored, braced, or otherwise supported.
- Support systems shall be planned and designed by a professional engineer.
- See section 15 for additional guidelines.

3.1.4 NOISE

Heavy equipment and other construction activities may produce noise levels above acceptable standards. High noise levels can contribute to hearing loss as well as interfere with communication between workers. Exposure to noise can be expected when working around equipment and machines such as heavy earthmoving equipment, generators, compressors, jackhammers, etc. The average noise level around heavy equipment will be over the 85 decibels established by OSHA, therefore, all personnel shall wear hearing-protective devices (i.e., either ear plugs or muffs with a NRR rating of at least 29) within 25 feet of such operating equipment, or when noise levels interfere with normal speech. Hand signals will be established by on-site personnel, as appropriate, to facilitate communications while involved in high-noise activities.

3.1.5 WEATHER

Adverse weather conditions are important considerations when planning and conducting site operations. Hot weather, thunderstorms, and cold weather could be factors on this project. The following general practices will be followed:

THUNDERSTORMS

Thunderstorms can develop very rapidly discharging dangerous lightening. If an electrical thunderstorm develops during the project, all outside work will cease until the storm has subsided.

HOT WEATHER

Working in protective clothing can greatly increase the likelihood of developing heat stress. Associates shall monitor themselves and others for signs of heat stress when ambient temperatures exceed 80° (70° when wearing Tyvek coveralls).

SIGNS OF HEAT EXPOSURE INCLUDE:

HEAT STRESS

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps caused by heavy sweating with inadequate electrolyte replacement.
- Signs and symptoms include:
 - Muscle spasms, and
 - Pain in hands, feet, and abdomen.

HEAT EXHAUSTION

Increased stress on various body organs including inadequate blood circulation or dehydration. Signs and symptoms include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness
- Nausea
- Fainting

HEAT STROKE

Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury occurs. Signs and symptoms include:

- Red, hot, usually dry skin
- Lack of or reduced perspiration
- Nausea
- Dizziness and confusion
- Strong, rapid pulse
- Coma

ENTACT REQUIRES:

- Orientation for all associates on heat stress and its related symptoms
- Regular break periods with water and Gatorade
- Monitoring for heat stress
- Body water loss due to sweating should be measured by weighing the associate in the morning and the evening. The clothes worn should be similar at both weightings. Body water loss should not exceed 1.5% OF TOTAL BODY WEIGHT. If it does the worker should be instructed to increase his or her intake of body fluids.
- The heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher the next work period should be shortened by 10 minutes while the length of the rest period remains the same.
- There will be established break periods with additional breaks on an as needed basis.

COLD WEATHER RELATED ILLNESSES

HYPOTHERMIA

Hypothermia is defined as a decrease in the body core temperature below 96°. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a “cold” ambient temperature.

FROSTBITE

Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless ambient temperatures are below freezing and usually less than 20°.

Several steps will be taken to prevent cold related illness including:

- Educating workers to recognize the symptoms of frostbite and hypothermia;
- Identifying and limiting known risk factors;
- Assuring the availability of an enclosed, heated environment on or adjacent to the site;
- Assuring the availability of dry changes of clothes;
- Assuring a capability for temperature recording at the site; and
- Assuring the availability of warm drinks.

MONITORING FOR HYPOTHERMIA

Oral temperature recording at the job site will be used to monitor for hypothermia. This will be done at the following times:

- At the supervisor's discretion (based on changes in a worker's performance);
- At the worker's request;
- As a screening measure, two times per shift, when hazardous conditions exist (wind-chill less than 0° or less than 30° with precipitation); and
- As a screening measure for all workers, whenever any worker on the site develops hypothermia.

A core temperature of 95° is an indication of mild hypothermia and shivering and “goose bumps” are present. The single most important sign of hypothermia is a change in behavior.

MONITORING FOR FROSTBITE

Frostbite occurs most commonly to accral parts (earlobes, nose, cheeks, and hands) which are distal to large muscle masses and subject to vasoconstriction. Three general types of frostbite are:

- Frostnip
- Superficial frostbite
- Deep frostbite

Frostnip exists as a whitened area of the skin or extremity. Slight burning or painful sensations may be present. A cessation of pain and feelings of warmth are indications of superficial frostbite. The skin may be waxy white and firm to the touch. Deep frostbite results in tissue damage deeper than the skin. The appearance of the affected area is cold, numb, pale, and firm or hard.

TREATMENT OF FROSTBITE

Simple rewarming of frostnipped skin is definitive treatment. More extensive heating is needed to treat frostbite. The following specific procedures will be followed for cold-related illness:

- Treat the systemic hypothermia first, then the frostbite.
- Give hot liquids orally.
- Remove all covering from injured part. Do not break blisters.
- Do not attempt to thaw with dry heat. This is dangerous to frostbite tissue. Warm injured part in water from 104° to 110°. This should feel warm but not hot to an uninjured observer. Check temperature with thermometer.
- Seek immediate medical attention.

3.1.6 Slip, Trip, and Fall

Protection from slip, trip and fall hazards will be provided through standard safety procedures including good housekeeping. Properly locating equipment and removing debris and taking general precautions during site operations will be standard operating procedures. Workers will be apprized of any potential trip hazards through regularly scheduled health and safety meetings. Whenever possible, trip and fall hazards will be eliminated or clearly identified with yellow "caution" tape. Impalement hazards to workers will be neutralized as soon as they are identified. ENTACT and all subcontractors will be responsible for the use of safety harnesses, lifelines, lanyards, safety nets, etc., for safeguarding their employees when performing elevated work in compliance with 29 CFR 1926.

3.1.7 Fire Prevention

Fire extinguishers shall be provided in fuel areas, storage areas, portable buildings and equipment. All extinguishers will be inspected, serviced, and maintained. No burning of materials will take place at the project site. All flammable liquids will be marked and stored in a manner to conform to NFPA and OSHA requirements.

3.2 CHEMICAL HAZARDS

3.2.1 OVERVIEW

The chemical constituents that have been detected on site are listed in Table 3.1. The table also presents the maximum detected concentrations of chemicals by medium. As shown in the Table 3.1, the chemicals of concern fall into the following category of metals.

3.2.2 Metals

The metals of concern include:

- Arsenic
- lead

Based on available information, metals other than lead are present as minor components in the site s. Consequently, the levels of protection will be targeted for lead.

Lead is a heavy, ductile, soft, gray solid [NIOSH, 1994]. The boiling point is 1,740°C (3,164°F) and the melting point is 327°C (621°F). It is insoluble in water, and has a density of 11.34 at 20°C (68°F). Lead is a toxin in elevated levels, having a detrimental effect on the central nervous system (CNS), kidneys, blood, and bone marrow. In part, the other metals may cause similar effects. However, inorganic arsenic, beryllium and cadmium do not affect the central nervous system or hemetopoietic systems. Further, arsenic may cause lung and skin cancer, beryllium may cause a pulmonary fibrotic condition, and cadmium may cause lung and prostrate cancer. The primary routes of exposure include ingestion and/or inhalation of, and dermal contact with, airborne particulates.

Although descriptions of typical uses for these compounds are provided, they are for informational purposes only. The uses described may or may not have occurred at the site.

3.2.3 SOIL/SEDIMENT STABILIZATION

The treatment technology that will be used at the site is stabilization. The stabilization process sometimes referred to as fixation, uses additives or processes to chemically immobilize the hazardous constituents of a contaminated soil.

A staging area for treated material will be constructed. The staging area will be located on the level concrete surface. Staged soil piles will be covered with polyethylene sheeting at the end of the day's activities or prior to inclement weather to minimize the generation of leachate or airborne lead. A containment berm will be constructed around the perimeter of the staging area to prevent any surface water run-off and provide a means of collecting any water that may leach through the stockpiled material. An on-site borrow source or the treated stockpile soils from the Holmden Properties removal will be used for the berm material if possible. The staging area may be moved during the project to increase efficiency of operations. Collected wastewater will either be used for dust suppression in areas requiring excavation or on stockpiles awaiting treatment, if needed, or will be analyzed for the NEORS discharge parameters to determine if the water can be discharged to the municipal sewer system, pending approval from the City of Cleveland.

The on-site treatment of the excavated soils will be conducted according to the Treatability Study Report. The Phase IV land disposal restrictions for metals and any potential underlying hazardous constituents, if applicable, will be met for soils that contain a hazardous waste. The Treatability Study was designed to meet the most stringent LDR requirement for any material that, when generated, exhibited a hazardous characteristic. The alternative LDR treatment standards for hazardous contaminated soils is 7.5 mg/L TCLP lead, but the soils will be treated to be below the hazardous characteristic criterion for lead of 5.0 mg/L.

Near completion of the on-site treatment of the material, the berm material surrounding the staging area will be removed. If the berm material consists of treated stockpiled material from the Holmden Properties, the material will be placed for consolidation under the asphalt cover system. If other on-site material is used, the berm will be tested for total lead. If the lead concentrations are below 1,000 mg/Kg, the soils can be placed along the site perimeter. If the lead levels exceed 1,000 mg/Kg, the material will be treated and placed beneath the asphalt cover system. The concrete pad underlying the treatment containment area will be decontaminated after all treatment activities are completed.

3.2.4 GENERAL PRECAUTIONS

If signs of contamination are encountered that differ from those addressed in this plan, such as visible soil stains or unusual odors, ENTACT associates will stop all work in the area, barricade or otherwise isolate the area, and immediately contact the Project Field Manager or the Health and Safety Officer. Protection of worker health and safety shall be the first priority. Continuation of work in the area and the amount of, if any, personal protective equipment shall be determined by the Health and Safety Officer. Other precautions to be undertaken to ensure a safe work place on this project where the potential for chemical exposure may exist include:

- No smoking, eating, or drinking in areas where contaminants may be present.
- Avoid the area immediately downwind of any excavation.
- Contact with contaminated materials should be minimized through the knowledge of site conditions and the location of potential contamination based on previous site investigation reports.
- Minimize the creation of dust, through dust suppression such as water application.
- Adequately barricade all work zones to ensure public safety.

TABLE 3.1
EXPOSURE LEVELS OF METALS ⁽¹⁾

MASTER METALS, INC. CLEVELAND, OHIO SITE

METAL	EXPOSURE LIMITS ⁽²⁾ (TWA ⁽³⁾) (mg/m ³)	IDLH ⁽⁴⁾ (mg/m ³)
Arsenic	0.010	5
Lead	0.050	100

Notes:

Source: National Institute for Occupational Safety and Health (NIOSH) "Pocket Guide to Chemical Hazards", June 1994.

Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs), as found in Tables Z-1-A or Z-2 of the OSHA General Industry Air Contaminants Standard (29 CFR 1910.100).

TWA - Time-Weighted Average Concentrations for up to a 10-hour workday during a 40-hour workweek.

IDLH - Immediately Dangerous to Life and Health Concentrations; these concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape impairing (e.g., severe eye irritation) or irreversible health effects.

Concentrations represent those for zinc oxide (total dust).

4.0 AREA SAFETY AND HEALTH RISK ANALYSIS

This section is to be addressed in the weekly tailgate safety meeting and prior to the scheduled start of each new task to be performed. Each Area Specific Safety Assessment is designed to develop awareness to chemical and physical hazards specific to each task. It would be impractical to repeat in complete detail each control measure and SOP for each job task. Sources and hazards will be addressed for each job task with reference made to applicable control measures in Tables 4.1 – 4.10. When the Area Specific Safety Assessment is discussed, additional hazards may need to be addressed.

AREA SPECIFIC SAFETY ASSESSMENT

Job Task	Hazard Rating	PPE Level	Table No.
Mobilization	Low	Level D	4.1
Clear & Grub	Low	Level D	4.2
Excavation	Medium	Level C	4.3
Stabilization of Lead Soils	Medium – High	Level C	4.4
Concrete encapsulation	Low	Level D	4.5
Placement of Stabilized Soils	Low – Medium	Level C	4.6
Backfill & Construction of Cap	Low	Level D	4.7
Waste Shipment	Low – Medium	Level D	4.8
Equipment Decontamination & Demobilization	Low – Medium	Level D+	4.9
Physical/Environmental Hazard Analysis	Low	Level C	4.10

TABLE 4.1 MOBILIZATION / SITE PREPARATION
PPE: LEVEL D HAZARD RATING: LOW

Hazard	Sources	Control Measures
Atmosphere	Soil (dust) Heavy Metals	Visually inspect area. Exclusion zone, decontamination zone, and the support zone will be delineated. Background air sampling will be performed.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques. Use of mechanical equipment or hand trucks utilizing a minimum of two people to lift loads over 50 pounds or awkward loads.
Slip/Trip/Falls	Various Sources	Housekeeping shall be done to keep work areas neat and orderly. Trip hazards will be marked or eliminated. Fall protection will be discussed in daily safety meetings.
Electrocution	Electricity	Only qualified electricians will be allowed to hook up circuits. Electrical lines (overhead/underground) will be located. Extension cords will be inspected. Ground-Fault Circuit Interrupters (GFCIs) will be used on all electrically powered equipment.
Biological Hazards	Insect Bites Ticks, Snakes, Plants	See Table 4.10
Project Hazards	Physical and Chemical	Project hazards will be discussed in project orientation and continuing in daily safety meetings.
Electrical Shock Explosion	Overhead and Underground Utilities	All utilities will be marked and discussed in the site orientation meeting.
Accidental Injury	Miscommunications	Orientation meeting.
Heavy Metals	Lead	Training, PPE, baseline blood lead results.

**TABLE 4.2 CLEAR & GRUB
 PPE: LEVEL D HAZARD RATING: LOW**

Hazard	Sources	Control Measures
Atmospheric	Dust	Air monitoring, water suppressant as necessary.
Slips/Trips/Falls	Various Sources	Housekeeping shall be done to keep work areas neat and orderly. Recognized areas will be marked or eliminated.
Noise	Machinery	Hearing protection will be worn.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. Operators will be aware of their surroundings. Area will be marked off.
Cold and Heat Stress	Weather	See Section 3.0
Electrocution/Explosion	Underground and Overhead Utilities	All utilities will be marked prior to work beginning. Special classes will be conducted.
Road Traffic	Truck Entry and Exit	Flag person wearing orange vest if working within 10 ft of traffic area.

TABLE 4.3 EXCAVATION
PPE: LEVEL C HAZARD RATING: MEDIUM

Hazard	Sources	Control Measures
Atmospheric Hazard	Dust Lead	Level C protection with air monitoring and water suppressant.
Electrical Explosion	Overhead and Underground Utilities	Mark; identify prior to work beginning. Review in daily safety meetings. Spotters will be utilized when working within 10 feet of utilities.
Heavy Equipment Injury	Machinery	Qualified operators/machine inspected/backup alarms.
Noise	Machinery	Hearing protection will be worn.
Slips/Trips/Falls	Machinery	Safety training on climbing ladders and getting on and off the equipment. Recognized areas will be marked or eliminated, corrected, marked, or eliminated.
Excavation	Soil	Follow excavation procedures in Section 14.0. Excavation depth is estimated to be less than 4 ft.
Biological Hazards	Insect bites, ticks, snakes, plants	See Table 4.10

TABLE 4.4 STABILIZATION OF LEAD SOILS
PPE: LEVEL C HAZARD RATING: MEDIUM TO HIGH

HAZARD	SOURCES	CONTROL MEASURES
Lead Dust / Reagent Dust	Soil and Treatment	Water misters/dust suppressant, shields on equipment, PPE Level C
Physical Hazard	Slips/trips/falls Manual lifting	Identify areas and mark, good housekeeping, proper lifting techniques,
Heavy Equipment	Machinery	Qualified operators and daily-inspected equipment with back-up alarms. Rotating parts and pinch points must be noted and discussed.
Fire Hazard	Gasoline	Training, proper labeling and storage of flammable/combustible liquids. Gas/diesel will be in bulk storage except for 5 gallon approved metal containers for refilling small engines.
Noise	Machinery	Hearing protection will be worn.
High Pressure Water	Cleaning Machine	Follow basic safety procedures, discuss applicable H & S topics in daily safety meetings, and wear face shield.

**TABLE 4.5 CONCRETE ENCAPSULATION
PPE: LEVEL D HAZARD RATING: LOW**

Hazard	Sources	Control Measures
Atmospheric	Dust	Air monitoring, water suppressant during scarification.
Slips/Trips/Falls	Various Sources	Housekeeping shall be neat and orderly. Recognized areas will be marked or eliminated.
Noise	Machinery	Hearing protection will be worn.
Heavy Equipment	Machinery	Qualified operators, daily inspection of equipment. Operators will be aware of their surroundings. Area will be marked off.
Cold and Heat Stress	Weather	See Section 3.0

**TABLE 4.6 PLACEMENT OF STABILIZED SOILS
PPE: LEVEL C HAZARD RATING: LOW TO MEDIUM**

Hazard	Sources	Control Measures
Atmospheric Hazard	Dust from impacted soil	Water misters, dust suppressant, air monitoring, PPE. Drivers will stay in their trucks with windows up.
Collision	Moving trucks	Daily safety meetings and activity updates. Hand signals between operators and truck drivers. Flag person available.
Heavy Equipment	Machinery and dump trucks	Qualified operators, daily inspection of equipment. Drivers will have specific route to use. Routes and terrain will be discussed.

**TABLE 4.7 BACKFILL & CONSTRUCTION OF CAP
PPE: LEVEL D HAZARD RATING: LOW**

HAZARD	SOURCES	CONTROL MEASURES
Atmospheric Hazard	Lead impacted soil	Water misters, dust suppressant, air monitoring, PPE. Drivers will stay in their trucks with windows up.
Hauling and Spreading Soil	Soil and Equipment	Good communication between operators and ground crew (voice and hand signals). Communication of activities in daily safety meetings.
Slips/Trips/Falls	Various Sources	Housekeeping shall be done to keep work areas neat and orderly; recognized hazards will be marked or eliminated.
Noise	Machinery	Hearing protection will be worn.
Heavy Equipment	Machinery	Qualified operators and daily inspected equipment with back-up alarms.
Cold Stress/ Heat Stress	Weather	See Section 3.1.5

**TABLE 4.8 WASTE SHIPMENT
PPE: LEVEL D HAZARD RATING: LOW TO MEDIUM**

Hazard	Sources	Control Measures
Atmospheric Hazard	Dust from impacted soil	Water misters, dust suppressant, air monitoring, PPE. Drivers will stay in their trucks with windows up.
Collision	Moving trucks	Daily safety meetings and activity updates. Hand signals between operators and truck drivers. Flag person available.
Heavy Equipment	Machinery and dump trucks	Qualified operators, daily inspection of equipment. Drivers will have specific route to use. Routes and terrain will be discussed.
Waste Contact	Drummed waste	If waste drums are to opened before shipment don level C PPE.

TABLE 4.9 EQUIPMENT DECON & DEMOBILIZATION
PPE: LEVEL D+ HAZARD RATING: LOW

Hazard	Sources	Control Measures
Atmospheric Hazard	Lead impacted soil	PPE Level C for dry decon. Level D+ for wet decon
Skin Contact	Water and soil material	PPE Level D+ Water protective clothing and rubber boots.
High Pressure Water	Higher pressure cleaners	Proper training in the use of high-pressure equipment. PPE Level D+ Face Shield and water protective clothing, boots & gloves.
Traffic	Trucks and other equipment	Decon area set up with specific routes for incoming and outgoing traffic communication between driver and decon person.
Heat Stress/Cold Stress	Weather	See Section 3.1.5.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques use of mechanical equipment or hand trucks. Utilize "buddy system".
Slips/Trips/Falls	Various Sources	Housekeeping in good order; area will be kept neat and orderly.
Electrocution	Electricity	Only qualified electricians shall disconnect electrical circuits.
Heavy Metals	Lead	Exit blood lead levels will be taken on associates leaving the site.

TABLE 4.10 PHYSICAL/ENVIRONMENTAL HAZARDS

Hazard	Pre-Planning to Control Hazard	Active Control Measures
Biological	Insect Bites	Apply insect repellent prior to fieldwork. Wear protective clothing (work boots, socks, light colored clothing). When walking, try to avoid wooded areas, bushes, and tall grasses.
	<p>Tick Bites Tick season extends from Spring through summer. When embedded they might look like freckle.</p> <p>Snake Bites There may be poisonous snakes. If bitten by a snake, remain calm, keep the affected area below the heart and walk, do not run, to the nearest first aid station. Apply ice or a cold pack and seek medical attention.</p> <p>Plants Poison ivy, sumac, and oak may be present on site. Poison ivy can be found on tree trunks or as upright bushes. Poison ivy consists of 3 leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison sumac has white, "hairy" clusters</p>	<p>Wear protective clothing (work boots, socks, light colored clothing). Check yourself often for ticks, particularly your lower legs and arms covered with hair.</p> <p>Spray outer clothing, particularly your pant legs and socks, but not your skin. Avoid contact with bushes and tall grass. If you suspect that a tick is present, remove it with tweezers, pulling gently. If it resists, cover tick with salad oil for about 15 min. to asphyxiate, then remove. Look for signs of Lyme Disease, such as a rash that looks like a bulls-eye or an expanding red circle. Also look for signs of Rocky Mountain Spotted Fever, an inflammation which is visible in the form of a rash comprising of many red spots under the skin, which appears 3-10 days after the tick bite.</p> <p>Wear appropriate protective clothing. Be alert and aware of surrounding areas. Avoid walking in wooded areas and through bushes and tall grasses.</p> <p>Immediately wash skin thoroughly with soap and water if you come in contact.</p>
Electrical	<p>Locate and mark existing energized lines. De-energize lines if necessary to perform work safely.</p> <p>All electrical circuits will be grounded.</p> <p>All 120-volt single phase, which is not a part of the permanent wiring, will have a ground-fault interrupter in place.</p> <p>Temporary wiring will be guarded, buried or isolated by elevation to prevent accidental contact be personnel or equipment.</p> <p>Evaluate potential for high moisture/standing water areas and define special electrical wiring needs.</p>	Mark overhead and underground utilities.

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Ergonomic	<p>All operations evaluated for ergonomic impact.</p> <p>Procedures written to define limits of lifting, pulling, etc.</p> <p>Procedures to define how personnel will utilize proper ergonomic concepts and utilize mechanical material handling equipment.</p> <p>Necessary mechanical material handling equipment specified and ordered for project.</p>	<p>Proper body mechanics techniques stressed and enforced on a daily basis.</p> <p>Mechanical handling equipment maintained and utilized.</p> <p>Proper body mechanics stressed in scheduled safety meetings.</p> <p>Injuries reported and medically treated if in doubt about severity.</p> <p>Operations changed as necessary based on injury experience or potential.</p>
Existing Site Topography	<p>Survey site prior to layout. Identify areas unsafe for personnel or equipment due to physical conditions.</p> <p>Identify/locate existing utilities.</p> <p>Determine impact of site operations on surrounding properties, communities, etc.</p> <p>Identify mechanized equipment routes both on site and onto and off the site.</p> <p>Layout site into exclusion and contamination reduction zones based on initial site evaluation.</p>	<p>Awareness to work environment – regular inspection/audits to identify changing conditions encountered.</p>
Fire and Explosions	<p>Ensure that properly trained personnel and specialized equipment is available.</p> <p>Define requirements for handling and storage of flammable liquids on site, need for hot work permits and procedures to follow in the event of fire or explosion.</p> <p>Define the type and quantity of fire suppression equipment needed on site.</p> <p>Coordinate with local fire fighting agencies to discuss unique fire hazards, hazardous materials, etc.</p> <p>Ensure site operations comply 29CFR 1910.157G.</p>	<p>Inspect fire suppression equipment on a regular basis.</p> <p>Store flammable away from oxidizers and corrosives.</p> <p>Utilize hot work permit for all hot work on site.</p> <p>Follow any site-specific procedures regarding work around flammable.</p> <p>Review and practice contingency plans.</p> <p>Discuss on regular basis at scheduled safety meetings.</p>
Flammable Vapor and Gases	<p>Evaluate site to determine sources of likely flammable gas or vapor generation.</p> <p>Develop specific procedures to be followed in the event of exposure to flammable.</p> <p>Specify specialized equipment needs for inerting flammable atmospheres, ventilating spaces and monitoring flammable concentrations.</p> <p>Define requirements for intrinsically safe equipment.</p> <p>Develop contingency plan to follow in the event of fire or explosion.</p>	<p>Calibrated monitoring equipment available and utilized by trained personnel whenever working where flammable gas or vapor is present.</p> <p>Monitoring performed at regular frequency and in all areas where vapor could generate or pool.</p> <p>Equipment and operations shut down when threshold levels are exceeded.</p> <p>Contingency plans reviewed regularly by all involved personnel.</p> <p>Work areas are carefully inspected to look for possible ignition sources. Sources are removed.</p> <p>Operations shut down if specific task procedures can't be followed to the letter.</p>

Heavy Equipment Operation	<p>Define equipment routes and traffic patterns for site. Ensure that operators are properly trained on equipment operation for all equipment on project. Define safety equipment requirements, including backup alarm and roll over, for all equipment on site. IMPLEMENTS SOP of requiring operators to safety inspect equipment on a daily basis in accordance with manufacturer requirements.</p> <p>Evaluate project requirements to ensure that equipment of adequate capacity is specified.</p>	<p>Equipment inspected as required. Equipment repaired or taken out of service. Ground spotters are assigned to work equipment operators. Utilize standard signals and communication protocols. Personnel wear the proper PPE, utilize hearing protection, gloves for handling rigging, etc.</p> <p>Equipment safety procedures discussed at daily scheduled safety meetings. Personnel do not exceed lifting capacity load limits, etc. for equipment. Personnel follow basic SOPs which prohibit passengers on equipment, activating brakes and grounding buckles securing loads prior to movement, etc.</p>
Illumination	<p>Evaluate all operations and work areas to determine lighting requirements. Specify specialized lighting requirements including explosion proof, intrinsically safe, lighting needs. Determine if nighttime outdoor operations are necessary. Evaluate tasks to be performed and number of light plants necessary to allow operations. Ascertain if outdoor lighting from nighttime operations will have an impact on surrounding communities.</p>	<p>Inspect specialized equipment or replace as needed. Add additional lighting to areas with inadequate lighting. Inspect drop cords and portable lighting on regular basis. Replace or repair as needed.</p>
Noise	<p>Local community noise standards examined. Expected loud operations evaluated to determine compliance with community standards. Loud operations scheduled for approved time periods. Noise level standards established for equipment brought onto site. Hearing protection requirements defined for personnel expected to have excessive exposures.</p>	<p>Personnel receive annual audiogram. Personnel required to wear hearing protection. Defective equipment repaired as needed. Ongoing hearing conservation education promoted at scheduled safety meetings. Medical evaluation following noise (impact) exposure is symptomatic for themselves.</p>
Personal Injuries	<p>Site operations will be evaluated for exposures with serious injury potential such as flying or falling objects, pinch points, falls from elevated surfaces, etc.</p> <p>A written fall prevention program will be developed if workers will be required to work at heights greater than 6 feet from unguarded work locations. PPE requirements will be based on potential for injury.</p>	<p>Personnel will wear required PPE. Specialized equipment such as rope grab, winches, etc. will be inspected prior to use. Defective equipment will be immediately replaced.</p> <p>All injury and near miss incidents will be reported to the HSO. First aid / CPR trained person on site at all times.</p> <p>All injuries will be treated on site with advanced medical treatment being sought in case of doubt about severity.</p>

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Radiation	<p>Evaluate potential for exposure to radioactive materials.</p> <p>If likely, develop specialized training program for personnel.</p> <p>Develop plan and specify equipment for monitoring potential radiation sources.</p> <p>Establish health physics dosimetry program.</p> <p>If not likely, implement SOP of stopping work should any sign of radioactive materials become apparent.</p>	<p>Perform monitoring as defined in safety plan.</p> <p>Perform necessary calibration and maintenance on monitoring equipment.</p> <p>Employees participate in health physics monitoring program.</p> <p>Notify Field Project Manager when suspect materials are detected.</p>
Small Equipment Usage	<p>Site operations evaluated to determine need for specialized intrinsically safe, explosion-proof and UL approved equipment and instruments.</p> <p>Implement requirement for GFI, double insulated tool usage, or assured grounding program in all outdoor operations, will be utilized.</p> <p>Specific equipment needs to ensure that equipment used only for the purpose for which it was intended and to prevent abuse or misuse of the equipment.</p> <p>Specify requirements for the inspections and maintenance of specialized equipment.</p> <p>Specify that all equipment utilized on the project meets all OSHA requirements.</p>	<p>First aid on site.</p> <p>Transport for medical care if needed.</p>
Wildlife	<p>Inspect work environment where tasks are being performed.</p> <p>Awareness to bites.</p> <p>Dogs, animals, poison ivy, etc.</p>	<p>First aid on site.</p> <p>Seek medical attention if symptoms persist.</p>
Trenching and Excavation	<p>Implement excavation procedures if entry required into any excavation greater than 4 feet depth.</p> <p>Specify that competent persons assigned to project be present at all times personnel are in the trench.</p> <p>Specify that a Professional Engineer design specialized shoring systems for those that are extremely deep.</p> <p>Specify special PPE and monitoring requirements for excavations in soils contaminated with hazardous materials or gases and vapors.</p> <p>Ensure excavations comply with 29CFR 1926, Subpart P.</p>	<p>Competent person in the immediate area at all times that personnel are required to enter trenches.</p> <p>Operations shut down if the excavation shows any sign of cave in, excessive water, unacceptable levels of toxic contaminants, changing weather, or shoring systems have visible defects.</p> <p>Equipment operators keep all personnel inside excavation in sight. No suspended loads or movement of buckets over personnel.</p> <p>Regular monitoring is performed in excavations where toxic gases or vapors are possible.</p>

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Weather Conditions	<p>Evaluate prevailing weather conditions for the site. Contingency plans developed for likely severe weather conditions such as tornado and extreme thunderstorms. Provide for daily weather forecast service in extreme weather areas. Plan to weatherize safety systems, such as showers and eyewashes that would be impacted by extreme cold weather. Order necessary specialized cold weather clothing. Grounding and bonding requirements defined for thunderstorm areas. Sheltered air-conditioned break areas provided for extreme hot and cold weather zones.</p>	<p>Employees trained in contingency plan severe weather conditions. Emergency water sources inspected regularly in cold areas. Weather service contacted regularly during storm conditions. Supervisory personnel cease operations during extreme storm conditions. Personnel evacuate to safe assembly areas.</p>
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5.0 PERSONNEL TRAINING

All associates of ENTACT are required to attend forty (40) hours of classroom training on safe work practices at hazardous waste sites. All field personnel receive eight (8) hours of refresher training on the initial forty (40) hour classroom topics within the anniversary date of the individual's initial forty-hour class. FPM are required to have eight (8) hours of training on safe management of hazardous waste sites in compliance with 29CFR 1910.120. In addition, the following criteria shall be met:

- All assigned personnel will receive site specific training on routes of exposure and adverse health effects associated with the chemicals listed in Section 3.0 - Tables 3.1.
- At least one member of each work crew shall be trained on standard first aid procedures.
- At least one member of each work crew shall have training in the use of portable fire extinguishers in accordance with 29CFR 1910.157 (g).
- Personnel newly assigned to hazardous waste work receive three days of on the job training by a FPM.
- Each person entering the site shall sign a statement attesting to the fact that they have read and understand the Site Specific Safety Plan. Refer to Attachment J for sign in sheet.
- All subcontractors entering the contamination reduction zone and exclusion zone will have adequate training satisfying 29CFR 1910.120.

6.0 SITE SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

Following levels of protection will be utilized at the Master Metals, Inc. Cleveland, Ohio Site. For additional information see Attachment B – Personnel Protective Equipment Policy.

At a minimum, initial PPE requirements for non-intrusive activities will be Level D. The specific task analysis in Section 4 describes the level of protection for each task. PPE identified in Section 4 will be maintained until air-monitoring results or other observations indicate a change in PPE requirements. ENTACT will be consistent with NIOSH's minimum Level D or C depending on the task assigned.

LEVEL C	
Protective Gear	Type
½ Mask Air Purifying Respirator	3M/North
Filters	P-100
Protective Coveralls	Cotton or Tyvek
Inner Gloves	Latex
Outer Gloves	Cotton
Safety Shoes/Boots	Steel-Toed Leather
Boot Covers	Rubber
Hard Hat	Standard
Safety Glasses	Standard w/ Side Shields
¹ Face Shield	Standard
² Goggles	Standard
³ Hearing Protection	Plugs/Muffs
¹ Will be utilized when using high-pressure water. ² Will be utilized when grinding or cutting (tinted lenses). ³ Will be utilized when noise levels exceed 85db	

PPE will be upgraded:

- If new hazards are found with unknown toxic or physical hazards.
- If hazards exhibit higher toxic or physical hazards that require upgrading of PPE.
- If associate requests an upgrade.

PPE will be downgraded:

- Only when the FPM justifies the downgrade by monitoring or other practicable means.
- Downgrading request must be in writing and approved by the FPM and the HSO.
- Downgrading requests must be in writing and approved by the FPM, HSD, and HSO.

7.0 MONITORING

7.1 AIR MONITORING

This Air Monitoring Plan (AMP) describes the procedures to be used to perform air sampling and analysis activities for the protection of the associates at the Master Metals, Inc. Cleveland, Ohio Site.

7.1.1 OVERVIEW OF SAMPLING ACTIVITIES

This AMP will be implemented for the following types of air samples:

- Time-integrated air sampling using high volume perimeter (TSP/TPb) air monitors at 3 locations;
- Low-flow personal sampling (4units); and
- Gilibrator (1 unit).

The objectives of these sampling activities include:

- Monitor remedial actions where there is a potential for airborne releases of lead using low volume air samplers.
- Utilizing high volume TSPs to monitor total particulates and total lead.
- Utilizing RAMs for immediate particulate readings.
- Provide records and results to compare to action levels.
- Provide results for health and safety monitoring of on-site workers.

7.1.2 LOCATION AND CONSTRUCTION OF STATIONARY MONITORING STATIONS FOR TSP/PM 10 SAMPLERS

The actual locations will be documented in the field notes and photographic record. Every attempt will be made to maintain the following site recommendations regarding location of the TSP samplers:

- Sampler should be located away from trees, buildings, or other large obstacles. A general placement rule is that the sampler should be located at least twice as far away from the obstacle as the height of the obstacle.
- Sampler inlet should be 6 feet above the ground surface.
- Sampler must have unrestricted airflow.
- Sampler inlet should be at least 6 feet from any other high-volume sampler inlet.
- Do not place the sampler directly upon the ground.
- Do not place sampler near exhaust flues or vents.

7.1.3 COLLECTION PROCEDURES FOR METALS USING HIGH VOLUME SAMPLER

Samples will be collected with the high-volume samplers for a 24-hour period during work activity. The frequency of high volume sampling will not be decreased or discontinued without prior notification and approval from the USEPA.

High-Volume air samples for TSP will be collected and analyzed using the procedures from 40 CFR, Part 50, Appendix B - Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method). Sample collection involves the use of a high volume vacuum pump to pull air through a filter, depositing airborne agents on the filter. The filter will then be analyzed at an accredited laboratory to determine how much of the agent of interest was deposited on the filter. Then, using the volume of air collected, the airborne concentration of the contaminant can be determined. Standard operating procedure for the High-Volume air sampler is included in Attachment B to the FSAP.

7.1.4 LOW-VOLUME PERSONAL AIR SAMPLING

Air quality samples will be collected to determine the amount of antimony, arsenic, cadmium, and lead in the air for worker safety. These samples will be collected with five (5) low volume sampling pumps and sampling cassettes. The sampling pump will be positioned upon personnel in such a way as to obtain a sample from the breathing zone of the worker. Air quality sampling may also be conducted in or near areas of potential fugitive dust emissions generation. Sampling pumps will be positioned in this manner only when it is impracticable for the pump to be worn directly on personnel. Such areas may include the following:

- equipment during excavation activities
- areas surrounding excavation operations
- and/or any other material moving operation.

Operation of the low-volume personal air monitors will be in accordance with the standard operating procedure (SOP).

7.1.5 SAMPLE FREQUENCY AND RESPONSE TO RESULTS

Low-volume sampling will be made whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional associates being potentially exposed to metals at or above the following action levels:

CHEMICAL	PEL	ACTION LEVEL
Arsenic	.010 mg/m ³	.005 mg/m ³
Lead	.05 mg/m ³	.03 mg/m ³

If the initial determination for each site location shows levels to be below the action levels for a period of seven consecutive days of monitoring, no further monitoring need be performed.

If the initial determination shows levels to be above the action levels, monitoring will continue until two consecutive measurements, taken at least seven days apart, show levels to be below action levels at which time monitoring may be discontinued.

Analysis of the low-volume samples will be performed on a rush (three-day turnaround) basis in order to determine appropriate protective equipment requirements.

7.1.6 CALIBRATION AND MAINTENANCE REQUIREMENTS

Air monitoring instruments will be calibrated daily prior to use. Batteries will be completely charged and units will be inspected for malfunction or misuse.

7.1.7 ESTABLISHMENT OF BACKGROUND CONCENTRATIONS

The on site Health and Safety Officer will perform boundary monitoring for TSP for three days prior to the initiation of excavation to establish baseline levels.

7.1.8 POSTING OF AIR MONITORING RESULTS

All personal air monitoring results will be posted in the site break area.

7.2 SAMPLING DOCUMENTATION

A field log of daily activities will be used to record sampling activities on a daily basis. This book will be bound and have consecutively numbered pages. Entries in the field logbook will be made in ink and will include:

- Name of Author
- Date and Time of Entry
- Location of Activity
- Names and affiliations of personnel on site
- Calibration records
- Sample collection or measurement methods
- Number of samples collected
- Daily weather report, including wind speeds, direction, and barometric pressure
- Sample identification numbers
- Field observation and comments
- Any deviations from the sampling plan

Several field logbooks may be used, such as one logbook for the TSP sampling program, and another logbook for RAM unit operation and readings, and still another logbook for weather station data. Logbooks may have pre-formatted pages with specific prompts for each type of instrument. All logbooks will be maintained in the project trailer during site activities and then stored in a secured file system upon completion of the project.

7.3 CHAIN OF CUSTODY AND SHIPPING PROCEDURES

7.3.1 CHAIN-OF-CUSTODY PROCEDURES

Proper documentation of sample collection and the methods used to control these documents are referred to as Chain-of-Custody (COC) procedures. COC procedures are essential for presentation of sample analytical results as evidence in litigation or at administrative hearings conducted by regulatory agencies. COC procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples. The QAPP describes all COC procedures for both field use and laboratory use.

7.3.2 SAMPLE IDENTIFICATION AND HANDLING

Proper sample containers and filter media will be used to minimize the alteration of sample chemistry between the field and the laboratory. For high-volume air sample filters, each filter will be carefully folded and placed into a single envelope with a sample label attached. For personal, low-volume samples, each cassette will be prepared for shipment to the laboratory by writing the sample identification number and date on the cassette with a permanent marker.

7.3.2 SAMPLE SHIPPING

For shipping, all samples will be stored and packaged in such a manner as to prevent damage or breakage during shipment or transport. Samples not delivered to the laboratory will be shipped through an overnight parcel service by sampling personnel. Samples will be placed into suitable containers, labeled and sealed in such a manner that tampering with the seal would be obvious. All sample-holding times will be tracked and a copy of the Chain-of-Custody form will accompany the samples in a sealed plastic bag.

7.4 RADIOLOGICAL HAZARDS (XRF)

The XRF portable analyzer contains radiation sources that require specific handling procedures. For this reason, use of the portable analyzer will be limited to those personnel who have been trained in its use. A standard operating procedure is included in Attachment A of the FASP. A radiation officer located in the ENTA Chicago office is available to assist with questions.

8.0 DESIGNATED WORK ZONES

8.1 DESIGNATION OF WORK ZONES

The purpose of site control is to minimize potential contamination of workers, protect the public from the site activities, and prevent vandalism. To prevent both exposure to unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with PPE requirements will be clearly identified. The areas of designation will be:

- Support zone (clean)
- Decontamination zone (transitioned)
- Exclusion zone (hot)

8.2 SUPPORT ZONE

The support zone should be located upwind, if possible, and shall be secured against active or passive contamination from the work site. The support zone will consist of those areas adjacent to the exclusion zone where support trailers and equipment are staged. Eating and drinking will only be allowed in this area.

The uncontaminated support zone will be the area outside the exclusion and decontamination zones and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the exclusion zone. All personnel arriving in the support zone will upon arrival, report to the command post and sign the site entry/exit log. There will be one controlled entry/exit point from the clean zone to the decontamination zone.

8.3 DECONTAMINATION ZONE

The decontamination zone will provide a location for removal of contaminated personal protective equipment when personnel leave the exclusion zone during the day and the final decontamination at the end of the day. All personnel and equipment should exit via the decon area. The decontamination zone is a buffer zone between contaminated and support areas. The decontamination zone will be designated on the site map, but the exact location will be dependent upon actual site activities. Decontamination procedures as described in Section 9 will be followed.

8.4 EXCLUSION ZONE

The exclusion zone will be the areas clearly marked off with caution tape. Entry to and exit from this zone will be made through the decontamination zone. Appropriate warning signs to identify the exclusion zone should be posted (i.e. DANGER - AUTHORIZED PERSONNEL ONLY). Exit from the exclusion zone must be accompanied by personnel and equipment decontamination as described in Section 9.0.

The exclusion zone will be identified with a yellow banner guard. While in the exclusion zone, personnel will wear Level C PPE and refrain from horseplay, smoking, eating, drinking, and generating open flames.

8.5 GENERAL FIELD SAFETY

The following guidelines have been implemented and are constantly monitored and reviewed, so to fully comply with ENTACT's objective of keeping a safe and healthy work environment for all associates:

- All visitors must be sent to the command post to sign in and will be referred to the ENTACT FPM.
- Site entrance into the exclusion zone will be limited to essential personnel.
- Whenever possible, avoid contact with contaminated surfaces. Do not kneel on the ground to set up equipment. Stay away from any waste drums unless necessary.
- Eating, drinking is permitted only in designated areas in the support zone.
- Beards or other facial hair that interferes with respirator fit will preclude admission in the hot zone if it is determined to be a Level A, B or C.
- All equipment must be decontaminated or discarded upon exit from the exclusion zone, as determined by the ENTACT FPM.
- All personnel exiting the exclusion zone must go through the decontamination procedures described in Section 9.
- Safety equipment described in Section 6 will be required for all field personnel.
- Personnel will only travel in vehicles where individual seats for each occupant are provided. Seat belts will be worn if provided.
- Fire extinguisher will be available on site and in all areas with increased fire danger such as the refueling area.
- Associates will not interfere with or tamper in any way with air monitoring equipment.
- Trackhoes or other equipment with booms shall not be operated within 10 feet of any electrical conductor.
- Visitor log will be maintained at the command post. All personnel coming on site will sign in and out on a daily basis.
- Security will be maintained at the site by closing all gates during normal work hours. The site access gates, office trailer and supply trailer will be locked up in the evening.
- The exclusion zone will be marked and "Authorized Personnel Only" signs will be posted.
- The ENTACT FPM will allow only those individuals authorized to enter the site. If unauthorized members of the public are found on site, contact the FPM immediately and escort the individual.
- Visitors are only allowed in the work area with authorization and with appropriate levels of PPE as determined by site safety personnel. Access to the property is restricted to authorized representatives. All others must sign in at the command post and receive authorization to enter the site.
- The buddy system is mandatory at anytime that personnel are working in the exclusion zone, remote areas, or when conditions present a risk to personnel. The buddy system requires at least two (2) people who work as a team and maintain audible and/or visual contact while operating in the exclusion zone.
- For communication, radios will be used on site. The crews should remain in constant radio or visual contact while on site. The site evacuation signal will be 3 blasts on the air or vehicle horn.
- Smoking and tobacco products will not be allowed on the site.

9.0 DECONTAMINATION PROCEDURES

In general, everything that enters the exclusion zone at this site must either be decontaminated or properly discarded upon exit from the exclusion zone. All personnel, including any federal, state, and local officials must enter and exit the exclusion zone through the decon area. All personnel must be documented on the exclusion zone entry/exit log. Prior to demobilization, contaminated equipment will be decontaminated and inspected by the ENTACT Field Project Manager or designate before it is moved into the support zone. Any material that is generated by decontaminated procedures will be stored in a designated area in the exclusion zone until disposal arrangements are made.

Eating, drinking or any practice that increases the probability of hand to mouth transfer and/or ingestion of materials is prohibited in any area where the possibility of contamination exists and is permitted only in the designated break area. Personnel will not wear or bring dirty / contaminated clothing into the break area.

As work activities will be conducted throughout the site, a centralized decontamination facility will be used for the decontamination of equipment and personnel.

9.1 PERSONNEL DECONTAMINATION

This decontamination procedure applies to personnel at this site wearing Level C protection. These are the minimum acceptable requirements:

STATION 1 EQUIPMENT DROP

Deposit equipment used on-site on plastic drop cloths. These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

STATION 2 OUTER BOOT AND OUTER GLOVE WASH AND RINSE

Scrub outer boots, outer gloves, and/or splash suit with biodegradable soap. Rinse off using water.

STATION 3 OUTER BOOT AND GLOVE REMOVAL

Remove outer boots and gloves. If disposable, deposit in a container with plastic liner. If non-disposable, place in a clean dry place.

STATION 4 TANK CHANGE (NOT ANTICIPATED)

If a person leaves the exclusion zone to change their air tank, this is the last step in the decontamination procedure. The air tank is exchanged, new outer gloves and boot covers donned, joints taped, and the person returns to the exclusion zone.

STATION 5 OUTER GARMENT REMOVAL - LEVEL A OR B (NOT ANTICIPATED)

If applicable, remove SCBA backpack and remain on air as long as possible. Remove chemical resistant outer garments and deposit in a lined container. Decontaminate or dispose of splash suits as necessary.

STATION 6 PPE REMOVAL

Remove hard hat; face-piece on a clean surface. APR cartridges will be discarded as appropriate. Wash and rinse respirator at least daily. Wipe off and store respiratory gear in a clean dry location. Coveralls will be placed in marked containers. Tyvek, if worn, will be placed in contaminated PPE containers.

STATION 7 INNER GLOVE REMOVAL

Remove inner gloves. Deposit in container for disposal.

STATION 8 FIELD WASH

Thoroughly wash hands and face with soap and water. Shower at the hotel.

9.2 EQUIPMENT DECONTAMINATION

Following decontamination and prior to exit from the exclusion zone, the ENTACT FPM shall be responsible for ensuring that all equipment has been sufficiently decontaminated.

Decontamination can be completed by using brooms, brushes, or shovels or by high-pressure water when the machine permanently leaves the site. Decon rinse water shall be managed into onsite containers and sampled to determine appropriate disposal methods.

9.3 DISPOSITION OF DECONTAMINATION WASTES

Any decontamination waste will be disposed of in the appropriate waste stream.

10.0 HAZARD COMMUNICATION PROGRAM

Each contractor will be responsible for maintaining a copy of their Hazardous Communication Program and MSDS' on site. However, the following items are specific to this job site:

10.1 MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets will be maintained at the ENTACT Administrative job trailer in the Hazard Communication Program Binder. MSDS' will be available to all personnel for review during the work shift.

10.2 CONTAINERS

All containers received on site will be inspected by the contractor using the material to ensure that the containers are properly labeled with hazard warnings and manufacturer information. Secondary containers will be labeled utilizing the HMIS system.

10.3 CHEMICALS

The use of chemicals is anticipated to be minimal at Master Metals, Inc. Cleveland, Ohio Site. A list of chemicals used (Section 6.0) and a MSDS for each chemical used (Appendix B) will be maintained in the Hazard Communication Program Binder at the ENTACT Administrative job trailer.

10.4 EMPLOYEE INFORMATION

Prior to starting work, each associate will attend a health and safety orientation and will receive information on the following:

- An overview of the requirements contained in the Hazardous Communication Standard.
- Hazardous chemicals present at the site.
- The location and availability of the written Hazard Communication Program.
- Physical and health effects of the hazardous chemicals.
- Methods of preventing or eliminating exposure.
- Emergency procedures to follow if exposed.
- How to read labels and review MSDSs to obtain information.
- Location of MSDS file and location of chemical list.

11.0 EMERGENCIES, ACCIDENTS & INJURIES

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms: illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following information should be posted as appropriate.

11.1 EMERGENCY CONTACTS

Ambulance, Fire and Police	911
Concentra Medical Centers 4660 Hinckley Industrial Parkway Cleveland OH 44109	(216) 749-2730 7am-7pm M-F
Grace Hospital 2307 W 14 th St Cleveland OH 44113	(216) 687-1500
Edgar Longstreet, HSD	(630) 616-2100 or (630) 842-9862
Mike Stoub, ENTACT Project Coordinator	(630) 616-2100
Bob Ainslie, ENTACT Field Project Manager (FPM)	(630) 842-9855
Matt Petrilli, ENTACT Administrative Project Manager (APM)	(630) 248-0782
Matt Petrilli, ENTACT Health & Safety Officer (HSO)	(630) 248-0782

11.2 ADDITIONAL EMERGENCY CONTACTS

National Response Center	(800) 424-8802
Center for Disease Control	(404) 639-3311
National Chemtrec	(800) 424-9300

11.3 COMMUNICATION

A mobile phone stays with the Field Project Manager at all times. He may be reached by two-way radios, which are assigned to field personnel. A private telephone will also be located at the command post. Emergency signals will be conveyed through the two-way radio system or an air horn. Three (3) short blasts signal an emergency.

11.4 FIRST AID KITS

First aid kits and fire extinguishers are located on site and in the work vehicles. An eye wash and safety shower station will be located near the decontamination area but no more than 100 feet from the exclusion zone.

11.5 ACCIDENT REPORTING

Refer to the to Attachment E or the Corporate Health and Safety Manual for Accident Reporting and Investigation procedures.

11.6 MEDICAL EMERGENCIES

The HSO will prepare for medical emergencies prior to work starting on the project by:

- Driving to the nearest hospital from the work site to verify the travel route.
- Ensuring first aid kits are available and stocked.
- Ensuring that there is an adequate supply of cool potable water to be used in the prevention and treatment of heat stress.
- Ensure all emergency telephone numbers are posted including having quick access to associate's emergency numbers.
- Ensuring that there are adequate fire extinguishers available.
- Ensuring first aid trained personnel are on site.

12.0 *EMERGENCY RESPONSE/CONTINGENCY PLAN*

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed. First aid should be administered while awaiting an ambulance. All injuries and illnesses should be reported to the ENTACT Field Project Manager and designated Health & Safety Officer.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) they may have been exposed to. Any vehicle used to transport contaminated personnel will be cleaned or decontaminated as necessary.

12.1 *FIRE*

At the start of intrusive work, the fire department will be notified and briefed about the potential hazards at the site. The ENTACT Health and Safety Officer (HSO) will be responsible for this notification. In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the ENTACT Field Project Manager will advise the fire commander of the location, nature, and identification of any hazardous materials on site.

If firefighters have to enter the Exclusion Zone, decontamination will be required upon leaving.

In the event of fire or explosion, or if vapor concentrations of explosive vapors or gasses approach or exceed (shall not exceed) 10 percent of the LEL as indicated by an explosion meter, personnel will evacuate the area immediately.

ENTACT shall provide protection from fires in the form of portable fire extinguisher. This protection shall meet or exceed the requirements of NFPA-10-1984.

12.2 *SPILLS*

In the event of a spill, site personnel should locate the source of the spill and stop the flow if it can be done safely. A containment area should be constructed to recover the spilled materials and prevent migration.

12.3 *EVACUATION*

- Work zones have established evacuation routes and all outside work areas have been provided with designated exit points.
- Evacuation should be conducted immediately, without regard to equipment under conditions of extreme emergency.
- Evacuation notification will be three (3) blasts on an air horn, vehicle horn, or by verbal communication on radios.
- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor is possible.
- If excavation is not via the decontamination corridor, site personnel should remove contaminated clothing once they are in a location of safety and leave it near the exclusion zone.
- The ENTACT Field Project Manager will conduct a head count to ensure all personnel have been evacuated safely.

-
- In the event of an emergency site evacuation, all personnel should escape to emergency situation, decontaminate to the maximum extent practical, and meet at the pre-determined off-site location.

12.4 EVACUATION RESPONSIBILITIES

As the administrator of the project, the ENTACT Field Project Manager has primary responsibility for responding to and correcting emergency situations. ENTACT's representative will:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, total evacuation and securing of the site or upgrading or downgrading the level of protective clothing and respiratory protection.
- Take appropriate measures to protect the public and the environment including isolating and securing the site, preventing run-off to surface waters and ending or controlling the emergency to the extent possible.
- Ensure that appropriate federal, state, and local agencies are informed, and emergency response plans are coordinated. In the event of a fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.
- Ensure that appropriate decon treatment or testing for exposed or injured personnel is obtained.
- Determine the cause of the incident and make recommendations to prevent the recurrence.
- Ensure that all reports have been prepared.

The FPM must immediately take measures to protect site personnel and to immediately report the incident to the Health and Safety Director after all personnel are safe.

Prior to and during excavation work, ambient air will be monitored and logged via multi-gas meter used to detect organic vapors, gases and oxygen deficient atmospheres. If the meter alarm sounds, work will stop immediately with notification to all site associates.

In the unlikely event of a leak of toxic gases, ruptured cylinders, drums, barrels etc., immediate site evacuation directed by the site HSO through the FPM, must be spontaneous. Immediate phone contact from the field to an outside emergency contact such as the National Response Center, National Chemtrec or Center for Disease Control, local Fire and or Police Departments, will follow as posted under emergency contacts identified in Section 11.

13.0 CONFINED SPACE

A confined space is defined as a space or work area not designed or intended for normal human occupancy, having limited means of egress. Examples include tanks, vats, and basements. The entry permit form in Attachment I will be utilized for entry in any Permit Required Confined Space. Confined spaces will be identified below during site preparation and during site activities as they are discovered.

TYPE OF CONFINED SPACE & LOCATION

None anticipated

14.0 EQUIPMENT SAFETY

The following equipment safety standards are applicable for equipment and vehicles owned or leased by ENTACT and their subcontractors. Safety Standards are divided into two categories, heavy equipment and vehicles. Heavy equipment includes rubber-tired and crawler type excavation and materials handling equipment and haul trucks. Vehicles include pick-ups, passenger vans and cars.

Heavy equipment anticipated for this site:

- Trackhoes
- Loaders
- Skid-Steer Loader
- Water truck
- Tandem dump truck
- Smooth drum compactor
- Bulldozer
- Service truck

14.1 HEAVY EQUIPMENT

14.1.1 GENERAL REQUIREMENTS

PARKING:

All equipment left unattended at night, adjacent to a roadway in normal use, or adjacent to active construction areas, shall have appropriate lights or reflectors, or barricades with appropriate lights or reflectors, to identify the location of the equipment. Bulldozer blades, end-loader buckets, dump bodies, and similar equipment shall either be fully lowered or blocked when being serviced or not in use. All controls shall be in a neutral position, with the motors stopped and the brakes set.

AUDIBLE ALARMS:

All heavy equipment shall be equipped with a reverse signal alarm. The alarm shall be distinguishable from the surrounding noise level, and shall be maintained in an operable condition.

VEHICLE CABS:

All equipment with operator cabs shall be equipped with windshields and power wipers. All cab glass shall be safety glass, or equivalent, that does not introduce visible distortion affecting operation. Cracked and broken glass shall be replaced.

SEAT BELTS:

Seat belts shall be provided in all equipment. Operators will be required to wear seat belts while the equipment is in operation. Seat belts are not required for equipment, which is designed for stand-up operation.

RIDERS:

Only qualified equipment operators will be allowed on the equipment when it is in operation. Associates will not be allowed to ride on the equipment.

14.1.2 UNDER POWER LINES

Except where electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work or where insulating barriers have been erected to prevent physical contact with the lines, equipment shall be operated in accordance with the following:

- A fifteen (15) foot fallback line will be utilized on all underground and overhead utilities.
- Underground utilities will have concrete monuments placed around them restricting access.
- All overhead poles will also have monuments placed around them.

14.1.3 ROLL-OVER PROTECTION (ROPS)

All rubber-tired and crawler type equipment owned or leased by ENTACT and any subcontractors shall be equipped with roll-over protective structures which meet the minimum performance standards, as prescribed in 29 CFR 1926.1001 and 1926.1002.

14.2 VEHICLES

14.2.1 GENERAL REQUIREMENTS

BRAKES:

All vehicles shall have a service brake system, an emergency brake system and a parking brake system. These systems may use common components and shall be maintained in working order.

LIGHTING:

All vehicles shall be equipped with two headlights and two taillights, and shall be maintained in working order. All vehicles or combination of vehicles shall have brake lights in operable condition.

SEAT BELTS:

Seat Belts meeting DOT regulations shall be maintained in all vehicles. ENTACT associates will be required to wear their seat belts when operating or as passengers in company vehicles.

LOADS:

Materials and tools will be firmly secured to prevent movement when transported in the same compartment with ENTACT Associates.

Audible Alarms:

No associate shall use any vehicle having an obstructed view of the rear unless:

- The vehicle has a reverse signal alarm audible above the surrounding noise level; or
- The vehicle is backed up only when an observer signals that it is safe to do so.

15.0 EXCAVATION SAFETY

15.1 EXCAVATION DECISIONS

Remediation activities at the site will require excavation of contaminated media at anticipated depths of up to 36 inches. All open excavations will conform to the excavation requirements prescribed in OSHA 29 CFR, Subpart P, and Parts 1926.650 through 1926.652. The following steps will be followed:

1. Contact the utility companies or property owners to locate the exact location of any underground installations in the area.
2. Remove or adequately support objects in the excavation area that could create a hazard to ENTACT associates. These may include rubble, debris and stockpiles.
3. Classify the type of soil at the site as either stable rock, Type A, Type B or Type C soil. The soil classification, as defined in Appendix A to 1926.652, must be made based on the results of at least one visual and at least one manual analysis conducted by the *Competent Person*. Excavations on this site will follow the procedures in (4) below for sloping and protection.
4. In all excavations less than 20 feet in total depth, the selected slope will be 1 ½ to 1 or 34°. If the total depth of excavation exceeds 20 feet, protective systems must be designed and approved by a registered professional engineer.

15.2 COMPETENT PERSON

As defined in 29 CFR 1926.650, the Competent Person is the one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to associates. The Competent Person has the authority to take prompt corrective measures to eliminate such hazards.

The Field Project Manager, Bob Ainslie, will be the designated Competent Person for the Master Metals, Inc. Cleveland, Ohio Site. The Field Project Manager reserves the authority to duly elect trained and knowledgeable associates to act in the capacity as Competent Person in his absence.

The *Competent Person* shall be responsible for inspecting all open excavations on the site on a daily basis. Inspections shall note the integrity of side slopes and sidewalls and insure that only trained and knowledgeable associates are supporting the excavation operations. The Competent Person will complete the inspection form (Attachment I – Safety Forms).

15.3 EXCAVATION HAZARDS

CAVE-INS / SLIDES:

A cave in or slide is defined as the separation or loss of soil material from the side of an excavation and its sudden movement into the excavation, either by sliding or falling, in sufficient quantity so that it could entrap, bury or otherwise injure and immobilize a person.

ENTACT associates in open excavations will be limited to those persons involved in the work. Only those associates involved in sampling or required to support excavation activities will be allowed into open excavations.

ACCESS / EGRESS (NOT ANTICIPATED):

A stairway, ladder, ramp or other means of safe access / egress shall be located in excavations that are 4 feet or more in depth. Locations of such means shall require no more than 25 feet of lateral travel for associates.

FALLING LOADS:

No associates will be permitted underneath loads handled by lifting or digging equipment. Associates will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

WATER ACCUMULATION:

Associates shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating.

15.4 SOIL CLASSIFICATIONS

Soil classification will not be used for sloping decisions. Excavations will have slopes at 34° or 1 ½ to 1. All trenches over 5 feet deep that require personnel to enter will have approved shoring, bracing, or trench boxes.

STABLE ROCK:

Refers to natural solid mineral matter which can be excavated with vertical sides and remain in tact while exposed.

TYPE A SOIL:

Cohesive with an unconfined compressive strength of 1.5 tons per square foot (tsf). Type A soils include clay, silty clay, sandy clay, clay loam, caliche, hardpan and sometimes silty clay loam and sandy clay loam. No soil should be classified as Type A soil if it is fissured; subject to vibration from traffic or similar effects, previously disturbed or part of a sloped, layered system where the side slopes are four horizontal to one vertical or greater.

TYPE B SOIL:

Cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf. Type B soils include granular cohesionless soils like angular gravel, silt, silt loam, sandy loam and sometimes silty clay loam and sandy clay loam; previously disturbed samples that are not Type C soils; fissured soils and soils subject to vibration that would otherwise be classified as Type A; dry rock that is not stable; and material that is part of a sloped layered system where the layers dip an a slope less steep than four horizontal to one vertical.

TYPE C SOIL:

Cohesive soil with an unconfined compressive strength of 0.5 tsf or less. Type C soils include granular soils such as gravel, sand and loamy sand; submerged soil; soils from which water is freely seeping; submerged rock; submerged rock that is not stable; or material in a sloped, layered system where the layers dip into the excavation at a slope of four horizontal to one vertical or steeper.

15.5 MAXIMUM ALLOWABLE SLOPES

TABLE A

Soil or Rock Type	Maximum Allowable Slopes (H:V) For Excavations Less than 20 Feet Deep	
Stable Rock	Vertical	(90°)
Type A	3/4 : 1	(53°)
Type B	1:1	(45°)
Type C	1-1/2 : 1	(34°)

15.6 SLOPING REQUIREMENTS FOR LAYERED SOILS

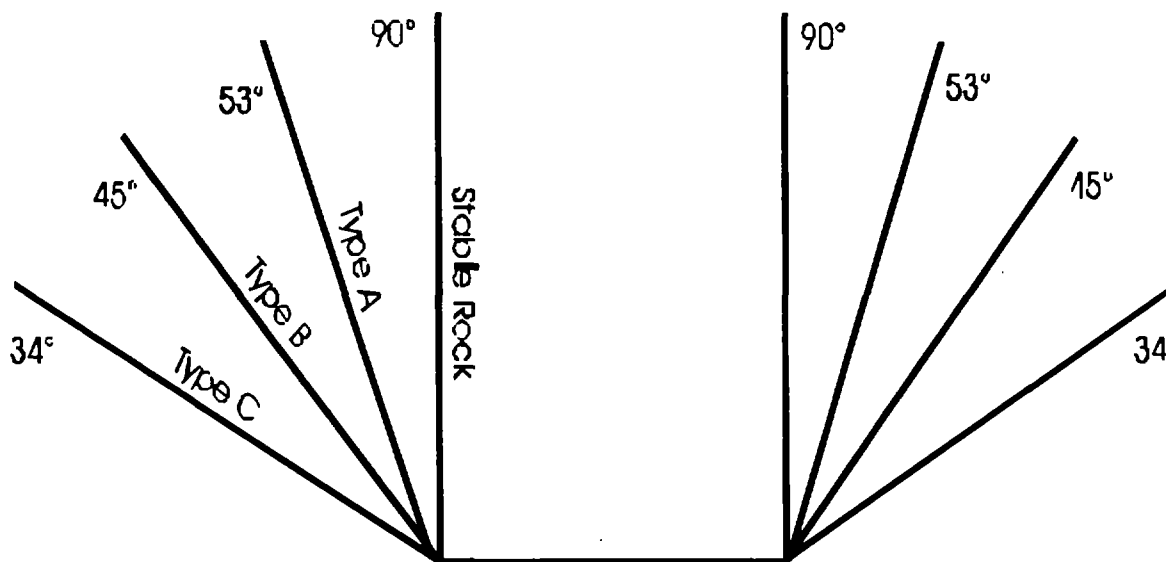
TABLE B

Layered Soil Type	Type A Layer	Type B Layer	Type C Layer
B over A	3/4 : 1	1 : 1	
C over A	3/4 : 1		1-1/2 : 1
C over B		1 : 1	1-1/2 : 1
A over B	1 : 1	1 : 1	
A over C	1-1/2 : 1		1-1/2 : 1
B over C		1-1/2 : 1	1-1/2 : 1

15.7 EXCAVATION AND TRENCHING GENERAL GUIDELINES

- All surface objects located around the excavation that could create a hazard will be removed.
- All underground/overhead installations will be located and marked prior to excavation.
- The competent person will design ramps. A competent person qualified in structural design will design structural ramps utilized for equipment.
- Associates exposed to public vehicular traffic shall wear warning vests.
- No associate will be allowed underneath loads handled by lifting or digging equipment.
- Warning system such as barricades or warning tape will be placed around the excavation site.
- The excavation will be monitored for hazardous atmospheres.
- All readings will be documented, discussed at safety meetings, and filed for future review.
- Emergency procedures and equipment will be available where hazardous atmospheric conditions exist:
 - Breathing apparatus
 - Safety harness and line
 - Emergency rescue team
 - Emergency procedures developed and communicated
- Associates will not work in excavations where water has accumulated unless adequate precautions have been taken.
- Excavation below the level of the base or footing of any foundation or retaining wall will not occur until a registered professional engineer has approved the work.
- Protection from loose rock or soil rolling into excavation will be maintained by scaling to remove loose material.
- Excavation material will be at least 2' from the edge of the excavation to keep material out.
- Inspections by the competent person using the form in Attachment I – Safety Forms:
 - Daily prior to work beginning.
 - Throughout the shift as needed
 - Rainstorm
 - Other hazard increasing occurrence
- All trenching 5 feet or deeper will have approved shoring and bracing installed or an approved trench box utilized. Approval will be from a professional engineer.
- Removal of any shoring shall begin at and progress from the bottom of the excavation.
- Backfilling will progress together with the removal of support systems.
- Any excavation over 20 feet deep will have sloping and benching designed by a registered professional engineer.

15.8 EXCAVATIONS/TRENCHING - 29 CFR 1926.650



Maximum Allowable Slopes	
Soil or Rock Type	Maximum Allowable Slopes for Excavation Less than 20'
Stable Rock	Vertical (90°)
Type A	3/4:1 (53°)
Type B	1:1 (45°)
Type C	1 1/2:1 (34°)
* Sloping or benching for excavations greater than 20' deep shall be designed by a registered professional engineer. All excavation slopes will be 1 1/2:1 (34°).	

15.9 DEFINITIONS:

Competent Person - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to associates and who has authorization to take prompt corrective action to eliminate them.

Excavation - Any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.

Trench - A narrow excavation (in relation to its length) where the depth is greater than its width. The width of a trench (measured at the bottom) is not greater than 15 feet.

Face or Sides - The vertical or inclined earth surfaces formed by the excavation.

Sloping - A means of protecting associates from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation.

Benching - Excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surface between levels.

Shoring - Structure such as a metal hydraulic mechanical or timber shoring system that supports the side of an excavation.

Protective System - A means of protecting associates from cave-ins. Includes sloping and benching systems, shield systems, other protective systems.

Shield - A structure that is able to withstand the forces imposed on it by a cave-in. It can be portable or permanent.

Trench Boxes - Shields used in trenches.

Cave-in - Separation of soil or rock into an excavation in sufficient quantities that it could entrap or bury a person.

Ramp - An inclined walking or working surface that is used to gain access to one point to another that is constructed of earth or from structural materials such as steel or wood.

Structural Ramp - Built of steel or wood.

Dirt Ramp - Made of soil or rock.

Kickout - The accidental release or failure of a cross brace.

Hazardous Atmosphere - An atmosphere that is explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness or injury.

Stable Rock - A natural solid mineral material that can be excavated with vertical sides remaining intact while exposed.

ATTACHMENT B - PERSONNEL PROTECTIVE EQUIPMENT POLICY

In conditions where a hazard exists, the ideal work environment would be achieved by the use of engineering controls such that the control utilized would either completely remove all hazardous materials/conditions from the work place or fully isolate associates from hazardous materials/conditions. An example of an engineering control is dust suppression accomplished by sprinkling dry, dusty soil with water. Whenever engineering controls can be proven effective and feasible, they will be initiated.

ENTACT Personal Protective Equipment Policy shall be consistent with NIOSH recommendations. It is anticipated that much of the remediation activities will be conducted in level C.

Any personal protective equipment issued to the associate by the company is the personal responsibility of the associate. He/she must ensure that it is kept in a safe and clean condition and in his/her possession at job sites. When in disrepair, it must be returned for repair or replacement.

In certain construction and maintenance operations, personal protective equipment, such as safety glasses, chemical goggles, respirators, hard hats, and protective clothing is required. The type of protective equipment to be worn will be determined by the degree of exposure to the potential hazard. When in doubt about the safety measures to be observed, associates shall contact the supervisor.

While personal protective equipment reduces the potential for contact with harmful substances, ensuring the health and safety of workers requires, in addition, safe work practices, decontamination, site entry protocols, and other safety considerations. Together these protocols establish a combined approach for reducing potential harm to associates.

Personnel must wear protective equipment when response activities involve known or suspected atmospheric contamination, when vapors, gases or particulate may be generated, or when direct contact with skin-affecting substances may occur. Respirators can protect lungs, gastrointestinal tract, and eyes against air toxicant. Chemical-resistant clothing can protect the skin from contact with skin-destructive and absorbable chemicals. Good personal hygiene limits or prevents ingestion of materials.

The materials of concern present at the site have been established by laboratory analyses of samples obtained from the job site. The selection of sample media and locations shall be on the basis of those *media and locations anticipated to be of greatest concern*. A risk analysis has been performed for each material of concern in order to identify the material(s) of greatest concern. The appropriate protective ensemble will be selected on the basis of the risk analysis.

In addition to risks due to contaminants, some physical hazards or hazardous conditions may be present at the site. These include risk of injury while working around heavy equipment, manual lifting, hearing damage from heavy equipment noise, and heat or cold stress.

PPE Level C with coated tyvek suit or cotton coveralls includes the following items at a minimum:

- One piece chemical resistant coated tyvek suit with hood and enclosed feet or one piece cotton coveralls
- Inner gloves; latex
- Outer gloves; cotton
- Rubber boots/safety- toed
- Half-face, dual cartridge, air purifying respirator with cartridges

-
- Safety harness and rope
 - Hearing protection
 - Hard hat
 - Safety glasses with side shields
 - Face shield (when using high pressure water equipment)

PPE Level D includes the following items at a minimum:

- One piece protective cotton coveralls
- Hard hat
- Safety glasses with side shields
- Work gloves – if required
- Hearing protection – if required
- Safety boots

1. EYE PROTECTION

Eye protection is required when engaging in such operations as the following:

- drilling, chipping, grinding, wire brushing
- handling caustics and acids
- breaking bricks and concrete
- hammering and chiseling
- at least numb 2 shaded eye protection for burning and oxygas welding.
- other situations which create a possible eye hazard, e.g., chemical environments

The following are different types of eye protection used:

- Industrial type safety glasses must be worn. Monogoggles will be worn over regular prescription glasses; if the glasses are not industrial rated.
- A full-face shield must be worn while performing any job with high-pressure water. A face shield is not to be substituted for safety glasses or goggles, but used in addition to them.
- Chemical splashguard goggles are required on all operations where solvents, acid, or caustics are used or in the immediate vicinity.
- Appropriate goggles must be worn at any time a hazard exists; such as grinding or chipping operations or welding.
- Sandblasting hoods with plastic face shields and piece protection are required while operating a sandblast gun or nozzle. These must be positive pressure fresh air hoods.

2. EAR PROTECTION

Ear plugs or muffs are required on assignments where the noise level is above 85 dBA on an average of eight hours worked. If noise is a problem, workers must wear hearing protection.

3. HAND AND BODY PROTECTION

Waterproof gloves, wet suits, and rubber boots will provide some protection. Where conditions warrant, additional protection such as acid suits, chemical gloves, metatarsal guards or shin guards must be worn. Personnel using arc welding equipment will comply with 29 CFR 1926.102 and will wear a long sleeve

shirt, gloves, head protection, and using a welding hood with a sufficient shaded lens for the type of welding being performed.

4. *FULL-BODY HARNESS AND LIFELINES*

Whenever any associate is exposed to the hazard of falling six feet or more, he must wear a serviceable harness and lifeline adequately secured to a fixed support. This will be so arranged that he cannot fall freely from a vertical distance more than three feet. This included any associate working on open steel, swing stages, suspended scaffolds, platforms without proper guarding, etc.

- When working on a swing stage or elevated device, the lifeline must be secured to a structure separate from the stage or elevating device.
- All safety harnesses, lifelines and lanyards are to be inspected before use for fraying or other weak spots. Any defective item must be replaced before using.
- Safety harness must be in good condition and the "D" ring must be placed in the back.
- Bolts, shackles, safety snap hooks, "D" rings and metal links which connect parts of the lifeline system to each other should be properly inspected and maintained at all times.
- Safety harness and lifelines are required on all work performed in confined spaces where an oxygen deficiency or toxic vapors may exist.

5. *BACK SUPPORT HARNESSES*

When any associate is required to move or lift any materials, dollies, forklifts, pallet jacks, back harnesses, and proper lifting techniques should be utilized. Proper lifting techniques are taught to all associates during training sessions and are as follows:

- Put on a back harness support
- Get a good footing on a solid surface
- Place one foot alongside and the other behind the object
- Squat down beside the object keeping your back as straight as possible
- Tilt the object and firmly grasp at the bottom center
- Draw the object close to your body, lift slowly by straightening your legs
- Do not lift more than you can carry. Get help with bulky or heavy loads.

ATTACHMENT C - FIRST AID

PROCEDURES FOR EMERGENCY MEDICAL AND FIRST AID

In the event of personal injury, a site associate trained in first aid will administer treatment to the injured worker. If necessary, the injured worker will be transported to the nearest hospital. (For all areas, emergency arrangements will be made prior to the commencement of work at the project.) An ambulance will be provided if necessary. The Field Project Manager is responsible for the completion of an Accident Report Form.

OSHA Subpart K, Medical Services and First Aid, states that an employer shall ensure that medical personnel are readily available for consultation if professional assistance is not in near proximity to the workplace, persons will be adequately trained to render first aid. ENTACT requests that at least one person for every ten employees working are trained in first aid procedures and cardiopulmonary resuscitation (CPR).

ENTACT advises the following procedures in case of an accident, however these recommendations are not a substitution for First Aid Training:

- Evaluate the situation and take immediate appropriate action. If necessary, remove the victim from a hazardous environment.
- Make certain help has been obtained from an appropriate source.
- Ascertain that the victim is breathing. If not, begin artificial respiration. Make sure the breathing passages are not blocked.
- Stop bleeding. Follow proper decontamination procedures prior to removing a victim contaminated with hazardous substances. If the victim is not decontaminated, other people and areas could be contaminated.
- Double check that help is on the way.
- Communicate accurate information concerning details of the accident to medical personnel. It is very important that the medical personnel understand what type of chemicals that the victim has been exposed to. The ENTACT office is equipped with specific chemical information and first aid guidelines to assist you and the medical personnel. This information can be accessed and relayed to the hospital or medical personnel within minutes.

ORDER OF OBTAINING FIRST AID

If possible, designate another person to go for assistance while you stay with the victim.

- Notify a physician, make him/her aware of the emergency and follow his/her advice regarding further first aid and transportation of the victim.
- If it is apparent that the services of an ambulance are necessary, tell the telephone operator it is an emergency and ask him/her to connect you with the local ambulance service. If there is no ambulance service, telephone the nearest city, county, or state police.
- In the telephone request to the doctor, police, or ambulance, be prepared to give:
 - The phone number you are calling from
 - The address and directions to the site
 - A description of the accident, number of victims and condition
 - Your name
- Do not hang up until emergency personnel end the conversation
- Stay at the site until the doctor or ambulance arrives.

CONDITION, SYMPTOMS AND TREATMENT

STOPPAGE OF BREATHING - BREATHING STOPPED ENTIRELY

- Check that breathing passages are not blocked.
- Apply mouth to mouth method of artificial respiration at once.

SHOCK - PALE SKIN, BODY CLAMMY AND COLD, PULSE RAPID AND WEAK

- Keep victim lying down.
- Maintain normal body heat, but do not allow victim to become overheated.
- If victim's face is pale, elevate feet slightly.

BLEEDING - BLOOD FLOWING

- Apply direct pressure over wound with cloth compress (sterile if possible).
- If bleeding continues apply pressure at nearest pressure point above the bleeding.

ELECTRICAL SHOCK - UNCONSCIOUSNESS, BURNS MAY BE PRESENT, MAY CONVULSE

- Survey the situation carefully. Make certain you are not the second victim.
- If possible, turn power off.
- If unable to turn power off move person from contact by moving live wire with a rope or dry board. If the victim remains in contact with the source of the electricity and must be moved use only your feet. By using your hands an electrical current is sent through your entire body including your heart and is far more serious than current through the legs. An electrical current through the lower extremities is rarely fatal.
- Check breathing. Check pulse. If necessary, begin CPR. Do not stop life saving measures until medical personnel arrive.

BURNS

- 1st degree - skin reddened - cover lightly with sterile dressing
- 2nd degree - skin blistered - cover lightly with sterile dressing
- 3rd degree - deep destruction of tissue usually with charring - cover lightly with sterile dressing and consult physician at once. Do not place grease or oil on any burn.

FRACTURES

- Simple - pain and swelling, and/or deformed part.
- Compound - broken bone plus break in skin and bleeding.
- Immobilize fractured part.
- Stop bleeding and dress wound.
- Splint securely if patient has to be moved.

SPINAL INJURIES

Injury to the spinal cord should be suspected in any accident involving a fall or injury to the neck or back. Loss of sensation and/or movement. Move the victim only if necessary. Attempt to keep the body aligned and the back and neck straight. Preferably, the victim should not be moved until an ambulance arrives with a special stretcher and trained personnel.

CHOKING

Violent choking, alarmed expression, attempts at inhalation, discoloration in the face, neck, and hands, unconsciousness.

- If the victim can cough, speak or breathe - DO NOT interfere by pounding on the victim's back.
- If the victim can not respond or speak, first attempt to dislodge the object causing the choking by 3-4 quick blows between the shoulder blades with the heel of your hand.
- If choking continues approach the victim from behind and place fisted hands below the rib cage and apply firm pressure in quick, sharp, upward blows to force air from the lungs.
- If unconscious, turn victim's head to one side, apply same pressure outlined in Step 3.
- Artificial respiration may be necessary for the unconscious victim after the object has been removed from the throat.

SUDDEN ILLNESS

- Heart Attack - Chest pain, shortness of breath, pale or bluish skin, shock.
- Stroke - Loss of sensation and/or movement on one side of the body, pupils unequal, inability to talk, unconsciousness.
- Convulsion - Rigidity of body muscles lasting from a few seconds to half a minute, bluish discoloration of face and lips.
- Fainting - Unconsciousness
 - Check breathing. Check pulse. Begin CPR, if necessary.

- Loosen tight clothing.
- Keep normal body temperature.
- In the case of convulsions - protect the victim from injury, but do not attempt to place objects in the victim's mouth.
- Do not attempt to give an unconscious victim liquids.

PREVENTION OF HEAT STRESS

- Proper clothing - Loose fitting, lightweight, light colored, and properly ventilated.
- Hat - To prevent radiant heat exposure to the head and to shield the face from ultraviolet light.
- Acclimatization - Heat disorders are more likely to occur at times when workers are unacclimatized to working in the heat. Most people require one week to adapt to a hot humid environment.
- Work loads - During hot temperatures, workloads should be adjusted to each worker's acclimatization rate.
- Body weight - Monitor your daily weight. A pint of water weighs one pound. If you have lost several pounds in one day, try to replace the amount of weight lost.
- Heart rate and body temperature - While working in the heat your heart rate and body temperature are good measures of body stress.
- Fluid intake - The most important measure of prevention adequate fluid intake during the work period.

Symptoms	Treatment
<u>Heat Stress:</u> Rapid heart beat Heavy sweating Discomfort Fatigue	Additional rest periods Plenty of water to drink.
<u>Heat Exhaustion:</u> Pale, cold, clammy skin Rapid, weak pulse Weakness, headache or nausea Cramps in abdomen Excessive perspiration	Move victim to cool shade Make victim lie down with head lower than the rest of the body Give victim water to drink Get medical help
<u>Heat Stroke:</u> Flush, dry, hot skin Rapid, strong pulse Skin feels hot to the touch, temperature well above normal Headache, dizziness, nausea Often the victim is unconscious	Move victim to cool shade Treat for shock Cover entire body with cold water Give victim water to drink if conscious Get medical help

EXPOSURE TO HAZARDOUS CHEMICALS

The environmental industry is faced with the problem of handling mixtures of unknown substances. Speed is of prime importance in the prevention of injury from chemical exposure. It may not be possible to take the time to determine what particular chemical or combination of chemicals is responsible for the exposure. Even if a chemical is known it may require valuable time to refer to specific chemical exposure guidelines. If the "worst case" exposure guidelines are followed, then valuable time can be saved. In general, there are four ways that chemicals enter the body: inhalation, skin exposure, eye exposure, and ingestion.

INHALATION

- Remove from hazardous area to fresh air.
- If not breathing begin mouth to mouth respiration.
- Give oxygen.
- Call emergency services.
- Identify chemicals.
- Observation by physician for a 24 hour period depending on specific chemical.

SKIN EXPOSURE

- Remove contaminated clothing.
- Wash under running water for 15 minutes.
- Call emergency services.
- Identify chemical
- Observation by a physician if necessary.

EYE EXPOSURE

- Wash eye for 15 minutes (remove contact lenses first).
- Call emergency services.
- Identify chemicals.
- Evaluation and treatment by physician.

INGESTION

- Identify chemical ingested.
- Call poison control center or CHEMTREC 1-800-424-9300.
- Follow actions given by center.
- Seek follow-up medical attention if recommended by the center.

ATTACHMENT D - ALCOHOL & DRUG POLICY

ENTACT strives to provide a safe and healthy work environment and protect its operations and facilities. It is the objective of ENTACT to maintain a productive and efficient work place. Therefore, ENTACT policy prohibits the unlawful manufacture, distribution, dispensation, possession, use, or being under the influence of a controlled substance in the work place. Any associate found to be in violation of this policy shall be subject to discipline, up to and including discharge.

ENTACT's Substance Abuse Policy was created to establish and maintain a safe and healthy work environment for its associates as mandated by the Drug-Free Work Place Act of 1988. "Drug" is defined as any substance, other than alcohol, capable of altering an individual's mood, perception, pain level or judgement. "Controlled Substance" is defined as any substance, which can be legally obtained only by prescription by a licensed medical practitioner. "Illegal Drug" is defined as any drug or controlled substance that is generally recognized as illegally sold or consumed.

All applicants for employment will be advised of ENTACT's Drug and Alcohol Policy. A medical screen for drugs is a condition for employment and will be included in the pre-employment physical examination. Positive tests serve as grounds for denial of employment and/or termination. Associates who refuse a medical screen may be denied employment. The Drug and Alcohol Policy allows ENTACT to require an associate to submit to a drug and alcohol test at any time, without prior notice. ENTACT may refuse to hire an applicant who does not sign an agreement consenting to future drug and/or alcohol testing in accordance with company policy.

All associates are expected to abide by the terms of the Drug and Alcohol Policy as a condition of employment. Additionally, all associates are required to notify their immediate supervisor if they are convicted under any criminal drug statute for a violation occurring in the work place no later than five (5) days after the conviction. If an associate is convicted under any criminal drug statute for a violation occurring in the work place, ENTACT may at its discretion take appropriate personnel action against the associate, up to and including immediate discharge, and/or require the associate to satisfactorily participate in a drug abuse assistance program.

The following guidelines are mandatory for all ENTACT associates:

- The use of illegal drugs is prohibited.
- All associates are prohibited from being under the influence of alcohol, illegal drugs, or any drug not legally prescribed during working hours.
- The use, sale, purchase, possession, or transfer of any controlled substance other than use as prescribed by a physician while performing company business, on or off company premises, is strictly prohibited and grounds for immediate dismissal.
- No alcoholic beverages will be bought or consumed on company premises except in connection with company sponsored events. Violation will result in disciplinary action, up to and including dismissal.
- Associates suspected of being under the influence of alcohol or any illegal drug during working hours, will be suspended immediately and will be required to take a medical screen for drugs.

The ENTACT Drug and Alcohol Policy, serves as protection for both ENTACT and its client. Therefore, compliance with the stated guidelines is mandatory and will ensure a safe, healthy work environment and reduce substance abuse related accidental injuries to person and property.

ATTACHMENT E - ACCIDENT REPORTING

ENTACT & Associates, LLC. is guided by an established safety policy. This policy is based on a sincere desire to eliminate personal injuries, occupational illnesses, and damage to equipment and property, as well as to protect fellow associates and the general public whenever the public comes in contact with, or is affected by, the Company's work.

ENTACT recognizes associates and implement safety procedures. Those associates who avoid injury and any vehicle accident are recognized on an annual basis. In addition, other incentive programs are implemented and include programs such as short-term safety contests, whereby prizes are awarded to associates with exceptional safety records. It is the responsibility of the Director of Corporate Safety to determine such additional incentive programs and/or contests.

ENTACT shall provide a verbal report of all reportable accidents, as soon as the injured associate's immediate needs are attended to, a verbal report of all injuries that require medical attention or loss of work time. A written report to Owner's safety inspector shall follow within twenty-four (24) hours. In the event of severe injury, death or extensive property damage, ENTACT shall notify and assist Owner's investigation team during the inquiry. ENTACT shall maintain a log of occupational injuries and illnesses as required by federal law in accordance with the OSHA record keeping requirements of 29 CFR 1904.2

Completed accident documentation appropriate for the accident shall be maintained on site and include the following forms / reports / summaries:

- Employer's First Report of Injury or Illness
- Medical Treatment Authorization
- Major Incident Report
- Automobile Loss Notice
- General Liability Loss Notice
- Motor Carrier Accident Report
- First Aid Register
- Monthly Accident Analysis
- Monthly Preventable Accident Monthly Summary

Copies of the Employer's First Report of Injury or Illness shall be submitted to Owner's safety inspector and construction foremen.

Managers and supervisors are charged with the responsibility of preventing the occurrence of incidents or conditions that could lead to occupational injuries or illness. While it is Management's responsibility to provide a safe environment in which to work, the ultimate success of a safety and health program depends upon the full cooperation of each individual associate.

Safety should never be sacrificed for production. It must be considered an integral part of quality control, cost reduction and job efficiency. Every supervisor will be held accountable for the safety performance demonstrated by the associates under their supervision. Our goal is the total elimination of accidents from our operations.

There are three sound reasons for this goal:

- No endeavor is worthy if it should cause human suffering through disabling injury or loss of life.
- A good safety record reflects the quality of management, supervision and the work force. It also serves to promote business and thereby contributes to the continuing growth and success of the Company.
- Poor accident experience increases costs, and results in a loss of profits. Our policy is to accomplish work in the safest possible manner consistent with good work practices. Management at every level is charged with the task of translating this policy into positive actions.

If an injury occurs on the job, no matter how minor, the supervisor is to be notified immediately so that appropriate medical treatment can be administered. As soon as possible thereafter, an Accident Report will be completed by the responsible supervisor.

Failure to report an accident immediately after it happens may result in dismissal and/or delay or denial of Workers' Compensation benefits.

All accidents and near accidents will be immediately investigated by the responsible project supervisor, the company safety officer, and management. Investigations will be conducted in accordance with the investigation format outlined in ENTACT's accident investigation report (Attachment I – Safety Forms). Information will be obtained from witnesses, the first report of injury, the victim, and other sources, which may be available.

ATTACHMENT F - GENERAL SITE SAFETY RULES

GENERAL RULES

The following guidelines have been implemented and are constantly monitored and reviewed, so as to fully comply with ENTACT's objective of keeping a safe and healthy work environment for all our associates and customers:

1. Horseplay, running, or jumping of any obstacles is prohibited.
2. Associates, visitors, and/or subcontractors will observe and comply with all posted danger, warning, caution, unauthorized areas signs.
3. There will be no unauthorized use or operation of ENTACT or customers equipment.
4. Other unsafe acts such as jumping from a vehicle or structure, running or throwing objects is unacceptable.
5. Use or possession of narcotics, intoxicating substances, or guns and ammunition is prohibited.
6. Reporting for work under the influence of narcotics or intoxicating substances is prohibited. NOTE: If on prescription drugs with a "stated" warning, let supervisor know.
7. Company Representative, designee, and ENTACT Health and Safety representative are authorized to stop any work, which they may consider hazardous to Company personnel or equipment or subcontractor personnel.
8. Associates have a responsibility to report for work on time and in condition to work in a safe and efficient manner. An "associate," as used in this Health and Safety plan, is any ENTACT employee.
9. The safety and security regulations of our customers must be strictly adhered to. This also applies to government standards and regulations.
10. Associates are required to verbally report any injury or incident to their supervisor, no matter how small it may seem. Failure to do so before leaving work that day may result in a delay or denial of benefits you may otherwise be entitled to. A written report should follow as soon as possible.
11. Before setting up operations, take a few moments to locate the nearest phone, eyewash, emergency shower, and fire alarm.
12. Tampering with or bypassing any safety device will not be tolerated.
13. Before setting up your operations, check the surrounding area for potential hazards and conflicts; overhead cranes, plant traffic, including railroads, workers in area, electrical wires, etc.
14. You should inform your supervisor of any incident or problem, which may have occurred during that shift immediately. This would include, but not be limited to, injuries, near misses, faulty or defective equipment, use of fire extinguisher, customer requests or concerns, damage to equipment, vehicular accident, etc.
15. Smoking and the use of open flames are strictly prohibited in areas where flammable liquids, gases, or highly combustible materials are stored, handled, or processed, and also in the decontamination or exclusion zones. Obey "NO SMOKING" signs. Smoke only in designated areas.
16. All posted warning, safety, and security signs and barriers shall be observed. Additionally, ENTACT shall provide warning signs, barriers, barricades, etc., wherever such protection is needed. Where signs and barricades do not provide adequate protection, particularly along a roadway, flagman will be used.
17. ENTACT personnel will not be permitted to use hoists and powered apparatus belonging to customers unless approval is obtained in each instance from the customer and ENTACT representative.

18. ENTACT personnel will not be permitted to carry cameras or take pictures without prior approval from the customer. If progress or finished construction photographs are desired, request for it should be made through the ENTACT representative and/or the customer representative and security.
19. Prior to beginning work, associates will be instructed on emergency procedures to be followed. The supervisor is responsible for notifying the associates of emergency situations and the evacuation. In the event of an evacuation, do not go home or leave the work site until released by your supervisor.
20. Areas sealed with polyethylene may become slick especially when disposable booties are worn - extra caution should be taken to secure footing and maintain proper balance during these situations.
21. Working from elevated platforms, scaffolding, and ladders can pose a great danger. Do not overreach, move ladder, scaffold or platform. Avoid shortcuts on scaffolding, ladders, and platforms. All provision of 29 CFR 1926 Subpart L must be complied with when working in or around platform, scaffolding, and ladders.
22. Good housekeeping procedures will be maintained during all project operations. Tools, materials, and equipment are more easily located and placed into service when good housekeeping procedures are followed.
23. Associates are prohibited from the unauthorized removal of any property or Company materials without the special authorization. Associates involved with theft of company property without authorization are subject to immediate termination. Associates involved in theft activities are also liable to the company for full restitution of monies and/or properties taken from ENTACT, and are subject to criminal prosecution by the Company. Theft of Company property, client property, or personal property belonging to associates will not be tolerated, and violators will be prosecuted.
24. Associates are cautioned that the Company will not be responsible for loss of personal property due to theft. Associates are advised to leave jewelry items, valuables, and personal items in a locked and secured area away from the job site.
25. Associates will wear all required personal safety protective equipment as required by ENTACT, while inside or outside the containment areas or hot zones.
26. Associates, visitors, and subcontractors are required to be dressed in the proper work uniforms at all times as per the requirements of the job.
27. Associates will obtain proper authorization prior to leaving the job site.
28. Safety guards, safety plugs, and/or any other electrical safety device shall not be bypassed, removed, or compromised in any way.
29. Step ladders, scaffolding, and/or platforms are to be used as designed and instructed by the supervisor. Stepladders should be used in the fully extended position only.
30. Respiratory equipment will be worn properly in accordance with EPA and OSHA rules.
31. Respiratory equipment will be kept clean and sanitary for reuse. Respirators not in use will be cleaned and stored in sealed protective bags.
32. Respirator cartridges new or used will be kept clean at all times. Cartridges that are spent should be properly discarded to prevent accidental re-use.
33. Optical eyewear other than industrial safety eyewear is prohibited from use on the job site.
34. Safety belts and lanyards are to be worn properly when required.
35. Specific maintenance and service to equipment and/or tools is to be conducted only by skilled maintenance personnel. Equipment used at the site will be inspected daily by a competent person.
36. Intentional violations of associate rights concerning health and physical well being will be cause for termination. Willfully causing an accident and/or injury to ones self or to a fellow employee will be cause for immediate termination.
37. Hand tools are to be used for the specific purpose of their design. Hand tools, electrical tools, and mechanically operated tools are to be free obstructions.

38. Trash bags marked for asbestos containing materials shall not be used for disposal of non-asbestos trash.
39. Waste identification labels will not be applied to any material which does not correspond with label (i.e. hazardous waste labels).
40. All safety equipment and tools are to be inspected for defects routinely by each employee prior to use. Damaged tools or equipment must be reported immediately to a supervisor and taken out of service.
41. All job site personnel must be aware of and know where to locate all fire extinguisher and emergency evacuation routes.
42. Hand tools are not to be left on the floor, scaffolding, ledges, and/or ladders.
43. Extension type ladders should be used with a 1 to 4 ratio - one foot out for every four feet of elevation.
44. Ladder users will face the ladder while ascending and descending. The top and second to top steps are not to be used for standing. Only one person at a time on a ladder. Bracing on the back of the ladder should not be used for climbing. Ladders should be secured to a fixed object when possible.
45. Guardrails and toe boards should always be installed on scaffolding. Workers should be careful to keep all debris bagged and obstacles off the floor. All components such as cross braces, railing, pin connectors, planking, toe boards, or scaffold grade lumber should be available before the unit is assembled.
46. Mobile scaffolding base dimensions should be at least one-half of the height. Scaffolding ten feet high or higher must have rigid guardrails.
47. All electrical equipment used on the job site will have electrical grounding devices with ground fault circuit interrupters. An extension cord without a ground wire plug is never to be used. Damaged electrical cords will be discarded or turned into the office for repair. All electrical cords and boxes are to be considered live until tested otherwise. Never spray water on or near open panels or electrical boxes. All 110v, 15-20 amp circuits must be protected with ground fault circuitry, or an assured grounding program. Electrical tools should be unplugged prior to servicing.
48. ENTACT requires that an electrical lock out/tag out program be in effect at all job sites. A written log entry will be made any time a lock out procedure goes into effect.
49. While preparing to do work around energized equipment such as transformers and/or electrical panel boxes, all aspects of 29 CR 1926 Subpart K must be complied with. Equipment that cannot be de-energized during the abatement will be covered and sealed on three sides only. There must be adequate ventilation to the panels and or boxes; or else there is the possibility and danger of explosion.

MOTOR VEHICLES

1. Any person operating a company vehicle must have a current, valid and appropriate driver's license. In addition, all applicants considered for positions, which include driving a company vehicle, will be subject to a Motor Vehicle Record search and evaluation.
2. All company vehicles must be equipped with a first aid kit at all times.
3. All company vehicles must be equipped with a fire extinguisher and flares or reflectors.
4. All company vehicles must be maintained in good mechanical condition. A pre-trip inspection shall be performed, and any defects or malfunctions must be reported to the supervisor before the vehicle leaves the yard.
5. The number of seat belts available for use shall limit the number of persons inside the vehicle.
6. The driver is responsible to see that he/she and each authorized passenger is properly wearing a seat belt while riding in a company vehicle.
7. All rules of the road and all customer regulations concerning vehicles must be obeyed.
8. Use extreme caution when backing a vehicle. If at all possible, use a safetyman to guide you.
9. All vehicles will be maintained in a clean and orderly manner to prevent injuries and fire hazards. This includes the cab as well as the inside and outside of the truck.
10. When your job assignment requires you to drive a company vehicle, you are considered to be a professional driver. Failure to drive courteously and to obey the rules of the road may result in the loss of this privilege and termination of your employment.
11. The use of company vehicles shall be restricted to the specific job to which you are assigned. Any unauthorized use will be cause for disciplinary action up to and including discharge.
12. All vehicles must be parked in authorized areas only.

MOTOR VEHICLE ACCIDENT REPORTING AND GENERAL LIABILITY

When an accident occurs, as soon as the preliminary investigation has been completed and the necessary claims handling actions have been taken (medical care for injured, rental cars obtained, etc.), the accident report must be filled out immediately. The vehicle operator, and / or equipment operator, and Field Project Manager are responsible for generating the accident report and initial investigation of the accident. The operator must immediately notify the supervisor of all equipment or vehicle damage. The accident report should be submitted to the Health and Safety Director.

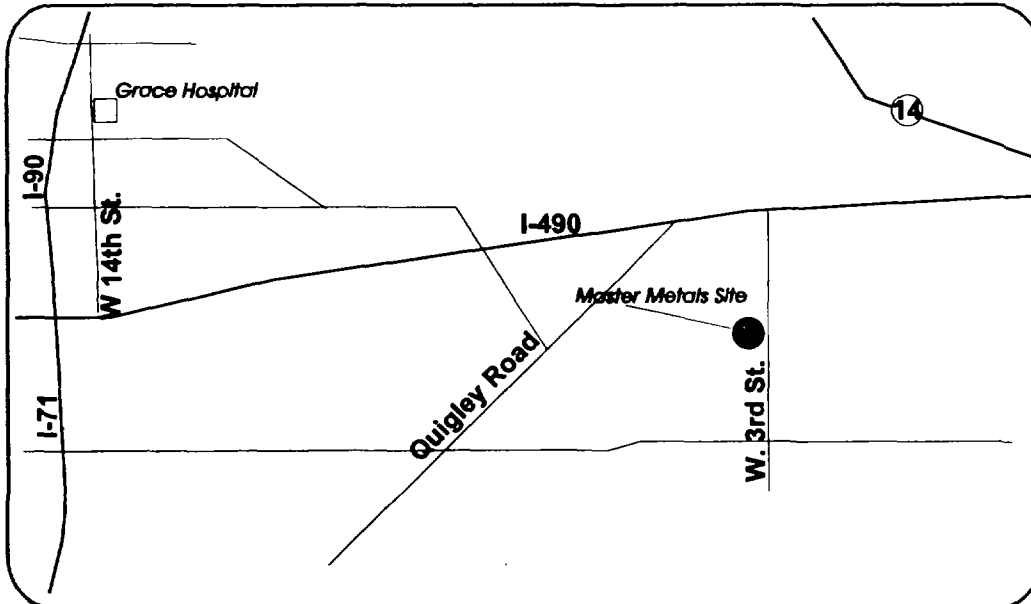
In some states state and local law enforcement agencies require additional forms and paperwork. It is the driver's responsibility to obtain these forms and to submit the properly prepared reports on a timely basis, to these additional regulatory agencies.

***ATTACHMENT G - MAP / HOSPITAL /
EVACUATION ROUTE***

MAP AND DIRECTIONS TO HOSPITAL

MASTER METALS

Cleveland, Ohio



SITE INFORMATION

Master Metals Site

ENTACT, Inc.
2850 W. 3rd Street
Cleveland, Ohio 44113
Phone (216) 687-0461

From Site:

North (Left) on 3rd Street to I-490

West on I-490 to I-71/90

North on I-71/90 to West 14th Street

*Exit on West 14th Street and go left at
top of ramp - Follow to Grace Hospital
on the right*

911

Police Department

911

Ambulance

911

Grace Hospital

(216) 687-1500



Driving Directions From:
ENTACT/Master Metals Cleveland Site
2850 W. 3rd Street
Cleveland, OH 44113

To:
Concentra Medical Center
4660 Hinckley Industrial Parkway
Cleveland, OH 44109

1: Start out going North on W 3RD ST by turning left.	0.2miles
2: Turn LEFT onto QUIGLEY RD.	0.6miles
3: Turn RIGHT onto CLARK AVE.	0.5miles
4: Turn LEFT onto W 14TH ST.	0.3miles
5: Take the ramp towards I-71 S.	0.3miles
6: Keep RIGHT at the fork in the ramp.	0.2miles
7: Keep LEFT at the fork in the ramp.	0.1miles
8: Merge onto JENNINGS FRWY.	1.6miles
9: Take the SPRING RD exit towards HINCKLEY PKWY.	0.2miles
10: Turn RIGHT onto SPRING RD.	0.1miles
11: SPRING RD becomes SPRING RD.	0.1miles
12: Turn LEFT onto W 11TH ST.	0.2miles
13: Turn LEFT onto PANNA LN.	0.2miles
14: Turn LEFT onto JUDIE DR.	0.0miles
15: Turn RIGHT onto MARCIE DR.	0.3miles

ATTACHMENT H - JOB SAFETY ANALYSIS

INSTRUCTIONS FOR COMPLETING JOB SAFETY ANALYSIS

A Job Safety Analysis (JSA) is an important accident/incident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed. Use your JSA for job clarification and hazard awareness, as a guide in new associate training, for periodic contacts and retraining of senior associates, as a refresher on jobs which run infrequently, as an accident investigation tool, and for informing associates of specific job hazards and protective measures.

Set priorities for doing JSA's: jobs that have a history of many accidents, jobs that have produced disabling injuries, jobs with high potential for disabling injury or death, and new jobs with no accident history.

I. SEQUENCE OF BASIC JOB STEPS:

- Break the job down into steps. Each of the steps of a job should accomplish some major task. The task will consist of a set of movements. Look at the first set of movements used to perform a task, and then determine the next logical set of movements. For example, the job might be moving a box from a conveyor in the receiving area to a shelf in the storage area. How does that break down into job steps? Picking up the box from the conveyor and putting it on a handtruck forms one job step. Everything related to that one logical set of movements is part of that job step.
- The next logical set of movements might be pushing the loaded handtruck to the storeroom. Removing the boxes from the truck and placing them on the shelf are another logical set of movements. Finally, returning the handtruck to the receiving area might be the final step in this type of job.
- Be sure to list all the steps in a job. Some steps might not be done each time checking the casters on a handtruck, for example. That task, however, is a part of the job as a whole, and should be listed and analyzed.

II. POTENTIAL HAZARDS:

- Identify the hazards associated with each step. Examine each step to find and identify hazards - actions, conditions and possibilities that could lead to an accident.
- It is not enough to look at the obvious hazards. It is also important to look at the entire environment and discover every conceivable hazard that might exist.
- Be sure to list health hazards as well, even though the harmful effects may not be immediate. A good example is the harmful effect of inhaling a solvent or chemical dust over a long period of time.
- It is important to list all hazards. Hazards contribute to accidents, injuries, and occupational illnesses.
- In order to do part three of a JSA effectively, you must identify potential and existing hazards. That is why it is important to distinguish between a hazard, an accident and an injury. Each of these terms has a specific meaning.
 - HAZARD - A potential danger. Oil on the floor is a hazard.
 - ACCIDENT - An unintended happening that may result in injury, loss or damage. Slipping on the oil is an accident.

-
- **INJURY** - The result of an accident. A sprained wrist from the fall would be an injury.
 - Some people find it easier to identify possible accidents and illnesses and work back from them to the hazards. If you do that, you can list the accident and illness types in parentheses following the hazard. Be sure you focus on the hazard for developing recommended actions and safe work procedures.

III. RECOMMENDED ACTION OR PROCEDURE:

- Using the first two columns as a guide, decide what actions are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness.
- Among the actions that can be taken are:
 - Engineering the hazard out
 - Providing personal protective equipment
 - Job instruction training
 - Good housekeeping
 - Good ergonomics (poisoning the person in relation to the machine or other elements in the environment in such a way as to eliminate stresses and strains)
- List recommended safe operating procedures on the form; also list required or recommended personal protective equipment for each step of the job.
- Be specific. Say exactly what needs to be done to correct the hazard, such as, "Lift, using your leg muscles." Avoid general statements such as, "Be careful."
- Give a recommended action or procedure for every hazard.
- If the hazard is a serious one, it should be corrected immediately. The JSA should then be changed to reflect the new conditions.

JOB SAFETY ANALYSIS FORM

Company Name: ENTACT & Associates, LLC.	Job Location: Job Number:	Associate's Name: Job Title:
Project Manager:	Date:	Analyzed By:
Personal Protective Equipment Required:	Page: of: JSA No.:	<input type="checkbox"/> New <input type="checkbox"/> Revised

ATTACHMENT I – SAFETY FORMS

[illegible]

COMPETENT PERSON'S DAILY EXCAVATION INSPECTION CHECKLIST

Job Location:

Competent Person:

Weather:

Date:

Time:

	Yes	No
1. Have all surface encumbrances been removed?		
2. Have underground/overhead utilities been located and marked?		
3. Have underground and/or overhead utilities been made non-hazardous? De-energized ___ Insulated ___ Other ___		
4. Less than twenty-five (25) feet lateral travel between ladders?		
5. If excavation is a trench, do the ladders extend three (3) feet above the excavation top?		
6. Are associates protected from vehicular traffic; barriers/vests?		
7. Is the work area properly barricaded to limit access?		
8. Were atmospheric readings taken and recorded for oxygen deficient and hazardous atmospheres? Prior to associates entering.		
9. Is water accumulating in the excavation?		
10. Are pumps used to discharge water from the excavation?		
11. Are all rocks and soils located two (2) feet or more from the excavation edge?		
12. Will excavation undermine the stability of adjoining buildings?		
13. Proper PPE being worn by all associates on site?		
14. What is the slope of the excavation? _____		
15. Are any of the following present (Any "yes" response requires corrective action and a reassessment of excavation slope.)? Vibrations ___ Yes ___ No Excess weight ___ Yes ___ No Temp. Changes ___ Yes ___ No Boiling ___ Yes ___ No Surface Water ___ Yes ___ No Tension cracks ___ Yes ___ No Heaves/bulging ___ Yes ___ No Spalling of soil ___ Yes ___ No		
16. Has rescue equipment been checked and is it easily accessible?		
17. All trenches 5 feet or deeper have approved bracing and shoring or an approved trench box?		

VISITOR SIGN-IN SHEET

All visitors must sign-in and be accompanied by an ENTACT representative at all times. By signing this sheet you hereby release ENTACT & Associates, Inc. of any liability from accidents or injuries. You must observe all site rules and regulations. No cameras or video equipment are allowed unless approved by ENTACT. All ENTACT equipment, process and operations are confidential. You must wear appropriate personal protective equipment and follow details contained within the Site Health and Safety Plan when entering exclusion areas.

Printed Name	Signature	Representing	Date	Time In	Time Out

PROJECT SITE SAFETY INSPECTION FORM

PROJECT NAME: _____
PROJECT LOCATION: _____
SITE SUPERVISOR: _____
INSPECTOR'S NAME: _____
DATE: _____

MEDICAL AND FIRST AID

YES NO

- | | | |
|---|--------------------------|--------------------------|
| 1. Are First Aid Kits accessible and identified? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are emergency eye wash and safety showers available? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are daily logs for first aid present and up to date? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are First Aid Kits inspected weekly? | <input type="checkbox"/> | <input type="checkbox"/> |

PERSONAL PROTECTIVE EQUIPMENT

- | | | |
|--|--------------------------|--------------------------|
| 1. Have levels of personal protection been established? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do all associates know their level of protection? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are respirators used, decontaminated, inspected, and stored according to standard procedures? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Have associates been fit-tested? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Is defective personal protective equipment tagged? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Does compressed breathing air meet CGA Grade "D"? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are there sufficient quantities of safety equipment and repair parts? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Does Level D protection consist of safety glasses, hard hats, and steel toe boots? | <input type="checkbox"/> | <input type="checkbox"/> |

FIRE PREVENTION

- | | | |
|--|--------------------------|--------------------------|
| 1. Is smoking prohibited in flammable storage areas? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are fire lanes established and maintained? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are flammable dispensing systems grounded and bonded? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are proper receptacles available for storage of flammables? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Has the local fire department been contacted? | <input type="checkbox"/> | <input type="checkbox"/> |

WELDING AND CUTTING

- | | | |
|--|--------------------------|--------------------------|
| 1. Are fire extinguishers present at welding and cutting operations? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

2. Are confined spaces; such as, tanks, pipelines, and trenches tested prior to cutting and welding operations?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are Hot Work Permits available?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are proper helmets, aprons and gloves available for welding and cutting operations?	<input type="checkbox"/>	<input type="checkbox"/>
5. Are welding and machines properly grounded?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is oxygen and fuel gas cylinders stored a minimum of 20 feet apart?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are only trained personnel permitted to operate welding and cutting equipment?	<input type="checkbox"/>	<input type="checkbox"/>

HAND AND POWER TOOLS

1. Are defective hand and power tools tagged and taken out of service?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is eye protection available and used when operating power tools?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are guards and safety services in place on power tools?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are power tools inspected before each use?	<input type="checkbox"/>	<input type="checkbox"/>
5. Are non-sparking tools available?	<input type="checkbox"/>	<input type="checkbox"/>

MOTOR VEHICLES

1. Are vehicles inspected before each use?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are personnel licensed for the equipment they operate?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are unsafe vehicles tagged and reported to supervision?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are vehicles shut down before fueling?	<input type="checkbox"/>	<input type="checkbox"/>
5. When backing vehicles, are spotters provided?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is safety equipment on vehicles?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are loads secured on vehicles?	<input type="checkbox"/>	<input type="checkbox"/>
8. Is safety belt use required?	<input type="checkbox"/>	<input type="checkbox"/>

EMERGENCY PLANS

1. Are emergency telephone numbers posted?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have emergency escape routes been designated?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are associates familiar with the emergency signal?	<input type="checkbox"/>	<input type="checkbox"/>

MATERIALS HANDLING

1. Are materials stacked and stored as to prevent sliding or collapsing?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are flammables and combustibles stored in non-smoking areas?	<input type="checkbox"/>	<input type="checkbox"/>

- | | | |
|--|--------------------------|--------------------------|
| 3. Is machinery braced when personnel are performing maintenance? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are tripping hazards labeled? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are semi-trailers chocked? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Are fixed jacks used under semi-trailers? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are riders prohibited on materials handling equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Are cranes inspected as prescribed and logged? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Are OSHA approved manlifts provided for the lifting of personnel? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Are all containers labeled as to contents? | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Are flammable liquids stored in approved safety cans? | <input type="checkbox"/> | <input type="checkbox"/> |

FIRE PROTECTION

- | | | |
|---|--------------------------|--------------------------|
| 1. Has a fire alarm been established? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do associates know the location and use of all fire extinguishers? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are fire extinguishers marked and inspected weekly? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are combustible materials segregated from open flames? | <input type="checkbox"/> | <input type="checkbox"/> |

ELECTRICAL

- | | | |
|--|--------------------------|--------------------------|
| 1. Are warning signs exhibited on high voltage equipment (250V or greater)? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Is electrical equipment and wiring properly guarded? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are electrical lines, extension cords, and cables guarded and maintained in good condition? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are extension cords kept out of wet areas? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Is damaged electrical equipment tagged and taken out of service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Have underground electrical lines been identified by proper authorities? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Has a positive lockout system been established by the project electrician? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Are GFCIs being used as needed? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Are extension cords being inspected daily for ground continuity and structural integrity? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Is extension cord inspection documented? | <input type="checkbox"/> | <input type="checkbox"/> |

SLINGS AND CHAINS

- | | | |
|---|--------------------------|--------------------------|
| 1. Are damaged slings, chains, and rigging tagged and taken out of service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are slings inspected before each use? | <input type="checkbox"/> | <input type="checkbox"/> |

-
- | | | |
|---|--------------------------|--------------------------|
| 3. Is sling inspection documented? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are slings padded or protected from sharp corners? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do associates keep clear of suspended loads? | <input type="checkbox"/> | <input type="checkbox"/> |

COMPRESSED GAS CYLINDERS

- | | | |
|---|--------------------------|--------------------------|
| 1. Are breathing air cylinders charged only to prescribed pressures? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are like cylinders segregated in well-ventilated areas? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Is smoking prohibited in cylinder storage areas? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are cylinders stored secure and upright? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are cylinders protected? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Are cylinder caps in place before cylinders are moved? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are fuel gas and O ₂ cylinders stored a minimum of 20 feet apart? | <input type="checkbox"/> | <input type="checkbox"/> |

SCAFFOLDING

- | | | |
|---|--------------------------|--------------------------|
| 1. Is scaffolding placed on a flat, firm surface? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are scaffold planks free of mud, ice, grease, etc.? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Is scaffolding placed on a flat, firm surface? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are defective scaffold parts taken out of service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Does scaffold height exceed 4 times the width or base dimension? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Does scaffold planking overlap a minimum of 12 inches? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Does scaffold planking extend over end supports between 6 to 18 inches? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Are associates restricted from working on scaffolds during storms and high wind? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Are all pins in place and wheels locked? | <input type="checkbox"/> | <input type="checkbox"/> |

WALKING AND WORKING SURFACES

- | | | |
|--|--------------------------|--------------------------|
| 1. Are access ways, stairways, ramps, and ladders clean of ice, mud, snow or debris? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do ladders exceed maximum lengths? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are ladders used in passageways, doors, or driveways? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are broken or damaged ladders tagged and taken out of service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are metal ladders prohibited in electrical service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Are stairways and floor openings guarded? | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | |
|---|--------------------------|--------------------------|
| 7. Are safety feet installed on straight and extension ladders? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Is general housekeeping up to ENTACT standards? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE SAFETY PLAN

- | | | |
|--|--------------------------|--------------------------|
| 1. Is a site safety plan posted on site or accessible to all associates? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Have potential hazards been described to associates on site? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are material safety data sheets available for review by associates on site? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Is there a designated safety official on site? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are associates aware and understand the results of exposure? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE POSTERS

- | | | |
|---|--------------------------|--------------------------|
| 1. Are the following documents posted in a prominent and accessible area? | <input type="checkbox"/> | <input type="checkbox"/> |
| A. Minimum Wage | | |
| B. OSHA Health and Safety | | |
| C. Equal Employment Opportunity | | |

SITE SET UP

- | | | |
|--|--------------------------|--------------------------|
| 1. Are work zones clearly defined? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are support trailers located to minimize exposure from a potential release? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are support trailers accessible for approach by emergency vehicles? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Is the site properly secured during and after work hours? | <input type="checkbox"/> | <input type="checkbox"/> |

HEAVY EQUIPMENT

- | | | |
|--|--------------------------|--------------------------|
| 1. Is heavy equipment inspected as prescribed by the manufacturer? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Is defective heavy equipment tagged and taken out of service? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are project roads and structures inspected for load capacities and proper clearances? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Is heavy equipment shut down for fueling and maintenance? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are back-up alarms installed and working on equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Are designated operators only operating equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are riders prohibited on heavy equipment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Are guards and safety appliances in place and used? | <input type="checkbox"/> | <input type="checkbox"/> |

EXCAVATION

- | | | |
|--|--------------------------|--------------------------|
| 1. Has a "competent person" been designated to supervise this excavation activity? (Site supervisor should be designated as the competent person.) | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

2. Have utility companies been advised of excavation activities?	<input type="checkbox"/>	<input type="checkbox"/>
3. Prior to opening excavations, are utilities located and marked?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has a professional engineer evaluated all excavations greater than 20 feet deep?	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there rescue equipment on site and accessible to excavation?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is excavated material placed a minimum of 24" from the excavation?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are the sides of excavations sloped or shored to prevent caving in on associates?	<input type="checkbox"/>	<input type="checkbox"/>
8. Has excavation greater than 4 feet deep been monitored for hazardous atmosphere (i.e., LEL/O2 deficiency)?	<input type="checkbox"/>	<input type="checkbox"/>
9. Are ladders used in excavations over 4 feet deep?	<input type="checkbox"/>	<input type="checkbox"/>
10. Are barriers, i.e., guardrails or fences placed around excavations near pedestrian or vehicle thoroughfares?	<input type="checkbox"/>	<input type="checkbox"/>
11. Is excavation inspected <u>daily</u> by a competent person and documented?	<input type="checkbox"/>	<input type="checkbox"/>

CONFINED SPACES

1. Have associates been trained in the hazards of confined spaces?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are confined space permits available on project site?	<input type="checkbox"/>	<input type="checkbox"/>
3. Is a confined space company safety procedure on the project?	<input type="checkbox"/>	<input type="checkbox"/>

PERSONNEL DECONTAMINATION

1. Are decontamination stations set up on site?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is a contamination reduction zone set up on site?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are waste receptacles available for contaminated clothing?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are steps taken to contain liquids used for decontamination?	<input type="checkbox"/>	<input type="checkbox"/>
5. Have decontamination steps and procedures been covered by the site supervisor or safety official?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is all personal protective equipment and respiratory equipment being cleaned on a daily basis?	<input type="checkbox"/>	<input type="checkbox"/>

EQUIPMENT DECONTAMINATION

1. Has equipment decontamination been established?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is contamination wash water properly contained and disposed of?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are all pieces of equipment inspected for proper decontamination before leaving the site?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is all equipment being cleaned on a daily basis?	<input type="checkbox"/>	<input type="checkbox"/>

HAZARD COMMUNICATION

- | | | |
|--|--------------------------|--------------------------|
| 1. Is there a written program on site? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Is there an MSDS <u>FOR EACH CHEMICAL</u> present on-site? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are all containers properly labeled, as to content, hazard? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Have associates been trained on chemical hazards? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are associates trained on chemical hazards while doing non-routine tasks? | <input type="checkbox"/> | <input type="checkbox"/> |

I HAVE REVIEWED THIS INSPECTION CHECKLIST WITH THE SAFETY INSPECTOR AND FULLY UNDERSTAND THE RECOMMENDATION AND WILL MAKE EVERY ATTEMPT TO CORRECT THEM IMMEDIATELY.

Health & Safety Officer: _____

Field Project Manager: _____

DEMOLITION CHECKLIST

1.0 PREPARATION

- ▶ All utilities disconnected?
- ▶ Competent person has surveyed the project? Shoring and bracing locations pinpointed in advance. Predictable hazards identified and prepared for.
- ▶ As-built drawings reviewed?
- ▶ A planned order of sequential demolition operations has been devised.
- ▶ Permits required?

2.0 GENERAL RULES

- ▶ Remove hazardous materials first (i.e. glass, chemicals, etc.).
- ▶ Leave stair rails, handrails, and guardrails till last.
- ▶ Cover all floor and wall openings as created.
- ▶ Provide as much lighting as possible.
- ▶ Warning signs posted and barricades in place.
- ▶ Wear proper PPE.
- ▶ Water demo material to contain or prevent dust.
- ▶ Walls should be left no more than 1 story at a time.
- ▶ Leave building stable at the end of the day.

3.0 FIRE HAZARDS

- ▶ If using torches, do a thorough end of day inspection for smoldering material.
- ▶ A fire extinguisher should be available at minimum OSHA requirements of one 2A rated extinguisher every 3,000 sq. ft. travel distance not to exceed 100 ft. An extinguisher should be located at all points of ignition.
- ▶ Prevent storage of combustible materials near trash piles. Remove combustible materials as soon as possible.

4.0 TRASH REMOVAL

- ▶ Trash chutes greater than 45° from horizontal must be completely enclosed.
- ▶ For multi-story buildings, chutes may have a 48" high opening at each floor.
- ▶ A bumper guard 4" thick by 6" high must be installed where mechanical equipment is used to dump trash into the chute
- ▶ The area where the chute discharges must be secured and closed when not in use.
- ▶ A competent associate must supervise operations at discharge end of the chute.

ENTACT & Associates, LLC.

CONFINED SPACE ENTRY PERMIT

Location:	Date:
Description:	Expiration Time:
Entry Location:	Entry Time:
Authorizing Entry:	Exit Time:
Emergency Phone:	Phone #:

ASSOCIATES

Print Name	Training				Signature
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	
	CSS	R	HW	FA	

Sign Off Key: (CSS) Confined Space Safety; (R) Respirator Protection; (HW) Hazwoper; (FA) First Aid

HAZARDS

Chemical Hazards (Corrosives, Irritants, Toxins, ...)
Physical Hazards (Noise, Fans, Sharp Objects, ...)
Biological Hazards (Insects, Rodents, Infectious Diseases, ...)
List Hot Work Permits:
Protective Clothing:

SPECIAL REQUIREMENTS

Lockout/Tagout	Y	N	NA	Ventilation	Y	N	NA	Harness	Y	N	NA	Lighting	Y	N	NA
Area Secured	Y	N	NA	Lines Capped	Y	N	NA	Lifelines	Y	N	NA	PPE	Y	N	NA
Communications	Y	N	NA	Inert, Flush	Y	N	NA	Rescue E	Y	N	NA	Fire Ext	Y	N	NA

Chemicals or materials to be used:

MSDSs available?	Y	N	Participants have been briefed on hazards?	Y	N
------------------	---	---	--	---	---

AIR MONITORS

Instrument	Serial Number	Calibration Date

ATMOSPHERIC TESTING

	Time	Oxygen	Lower Explosion Limit	Carbon Monoxide	Hydrogen Sulfide
PEL				< 35 ppm	< 10 ppm
IDLH		< 19.5 and > 23.5	< 10%	1500 ppm	300 pm
Pre Ventilation					
Post Ventilation					
During Entry					

DEBRIEFING
(Use additional pages if needed)

Did all members comply with the permit program?	Y	N
If no, explain:		
Were there unanticipated hazards encountered?	Y	N
If yes, explain:		
Additional Comments:		
Signatures:		
Signature of Attendant:		Date:
Signature of Authorizing Manager:		Date:

ENTACT & Associates, LLC.

SITE EVALUATION FOR ABATEMENT CHECKLIST

CLIENT: _____ PROJECT NO: _____ PROJECT: _____
LOCATION: _____ DATE: _____ TIME: _____
ENTACT PM: _____ ENTACT APM: _____

ADMINISTRATIVE CHECKLIST	Yes	No
EPA 560/5-85-02A (Purple Book)	<input type="checkbox"/>	<input type="checkbox"/>
40 CFR Part 61, Subpart A & M	<input type="checkbox"/>	<input type="checkbox"/>
40 CFR Part 763, Subpart G	<input type="checkbox"/>	<input type="checkbox"/>
40 CFR Part 763, Subpart E	<input type="checkbox"/>	<input type="checkbox"/>
29 CFR 1926.38	<input type="checkbox"/>	<input type="checkbox"/>
29 CFR 1910.134	<input type="checkbox"/>	<input type="checkbox"/>
25 TAC 289.141 - 289.156 TDH Regulations	<input type="checkbox"/>	<input type="checkbox"/>

REGULATED AREA	Yes	No
Is the area clearly marked	<input type="checkbox"/>	<input type="checkbox"/>
Is it a safe distance?	<input type="checkbox"/>	<input type="checkbox"/>
Does it have the Danger sign?	<input type="checkbox"/>	<input type="checkbox"/>
Is access restricted?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a sign-in/out log?	<input type="checkbox"/>	<input type="checkbox"/>

CLEAN ROOM	Yes	No
Storage for street clothes?	<input type="checkbox"/>	<input type="checkbox"/>
Respirators stored properly?	<input type="checkbox"/>	<input type="checkbox"/>
Is it clean and neat?	<input type="checkbox"/>	<input type="checkbox"/>
Is there extra protective clothing on-site?	<input type="checkbox"/>	<input type="checkbox"/>
Are the respirators clean and disinfected?	<input type="checkbox"/>	<input type="checkbox"/>
Is someone in charge of the respirators?	<input type="checkbox"/>	<input type="checkbox"/>
Are extra filters available?	<input type="checkbox"/>	<input type="checkbox"/>
Are there 1.5 respirators per worker?	<input type="checkbox"/>	<input type="checkbox"/>

JOB SITE	Yes	No
Is HEPA vacuum available?	<input type="checkbox"/>	<input type="checkbox"/>
Is Supervisor present?	<input type="checkbox"/>	<input type="checkbox"/>
Are wet methods being used?	<input type="checkbox"/>	<input type="checkbox"/>
Are emergency exits marked?	<input type="checkbox"/>	<input type="checkbox"/>
Is the first aid equipment available?	<input type="checkbox"/>	<input type="checkbox"/>
Is air changed every 15 minutes?	<input type="checkbox"/>	<input type="checkbox"/>
Extra negative air machine?	<input type="checkbox"/>	<input type="checkbox"/>
HEPA filters in machine?	<input type="checkbox"/>	<input type="checkbox"/>
Is there at least one fire extinguisher outside containment?	<input type="checkbox"/>	<input type="checkbox"/>

RECORDS CHECKLIST	Yes	No
TDH or ACB Project Modification	<input type="checkbox"/>	<input type="checkbox"/>
Contract Specifications	<input type="checkbox"/>	<input type="checkbox"/>
A roster of registered asbestos workers employed	<input type="checkbox"/>	<input type="checkbox"/>
A current physical exam record	<input type="checkbox"/>	<input type="checkbox"/>
Respirator fit tests for each worker	<input type="checkbox"/>	<input type="checkbox"/>
A daily sign-in sign-out roster of workers and supervisors in containment	<input type="checkbox"/>	<input type="checkbox"/>
A list of supervisors for each day	<input type="checkbox"/>	<input type="checkbox"/>
Was initial air monitoring performed?	<input type="checkbox"/>	<input type="checkbox"/>
Is daily personnel monitoring performed?	<input type="checkbox"/>	<input type="checkbox"/>
Are employees informed of the results?	<input type="checkbox"/>	<input type="checkbox"/>
Is area monitoring performed periodically?	<input type="checkbox"/>	<input type="checkbox"/>

DIRTY ROOM	Yes	No
Storage area for equipment?	<input type="checkbox"/>	<input type="checkbox"/>
Disposal bag for dirty suits?	<input type="checkbox"/>	<input type="checkbox"/>

SHOWER ROOM	Yes	No
Is it clean?	<input type="checkbox"/>	<input type="checkbox"/>
Is the drain water filtered properly?	<input type="checkbox"/>	<input type="checkbox"/>

OFF-LOADING AREA	Yes	No
Is ACM being double bagged?	<input type="checkbox"/>	<input type="checkbox"/>
Are the bags wet wiped?	<input type="checkbox"/>	<input type="checkbox"/>
Is the door double sealed?	<input type="checkbox"/>	<input type="checkbox"/>
Are all bags labeled as asbestos containing waste?	<input type="checkbox"/>	<input type="checkbox"/>
Is transporter double lined with poly?	<input type="checkbox"/>	<input type="checkbox"/>
Can storage box be locked if ACM is stored overnight?	<input type="checkbox"/>	<input type="checkbox"/>
Is storage box totally enclosed?	<input type="checkbox"/>	<input type="checkbox"/>
Is manifest prepared properly for shipment?	<input type="checkbox"/>	<input type="checkbox"/>

EMERGENCY PROCEDURES	Yes	No
Is emergency communication available?	<input type="checkbox"/>	<input type="checkbox"/>
Have workers been briefed on emergency procedures?	<input type="checkbox"/>	<input type="checkbox"/>
Are emergency phone numbers posted near the phone?	<input type="checkbox"/>	<input type="checkbox"/>
Is a first aid kit available on-site?	<input type="checkbox"/>	<input type="checkbox"/>

ENTACT & ASSOCIATES, LLC.

INJURY AND ILLNESS INVESTIGATION REPORT FORM

Please refer to instructions on the back before completing this form. Fax a copy to 1-630-616-9203, within two days of the incident.

1. Project:	2. Project #:	3. Date of Occurrence:	4. Time Incident Occurred:	5. Date Incident Was Reported:
6. Associate's Full Name:			7. Associate's S.S.#:	8. DOB:
9. Age:				
10. Associate's Home Address:				
11. Associate's Home Phone Number:			12. Marital Status: S M D	13. Number of Dependent Children:
14. How long employed with ENTACT: _____ years _____ months _____ days			15. Weekly wage: \$	16. Hourly rate: \$
17. Hours worked per day:	18. Hours worked per week:	19. Days worked per week:		20. Overtime hours per week:
21. Job at time of incident:			22. Time at this job: years _____ months _____ days _____	
23. Nature of injury:			24. Part of body injured:	
25. Project Manager:			26. Witness(es) to incident:	
27. Describe the incident:				
28. Describe why the incident occurred:				
29. Unsafe act:			30. Hazardous condition:	
31. What has been done or will be done to prevent reoccurrence?				
32. Fatal _____ Lost Time _____ Medical _____ First Aid _____				
33. Physician name, address, and phone number:				
34. Hospital name, address, and phone number:				
35. Investigated by:			36. Date:	
37. Reviewed by:			38. Date:	

INJURY & ILLNESS INVESTIGATION REPORT INSTRUCTIONS

WHAT IS AN ACCIDENT INVESTIGATION?

Basically, an analysis and evaluation based on information, gathered by the investigator (preferably the supervisor). The quality and usefulness of the information is directly related to the degree of interest, conscientiousness and thoroughness of the investigator.

WHAT IS THE "RIGHT" TIME FOR THE INVESTIGATION?

The best time and the right time is always as soon as possible after the occurrence. This assures accuracy of the facts. Interview the most knowledgeable persons involved or associated with the incident and perform the investigation at the scene of the incident when ever possible. Conducting "desk" investigations is discouraged except where privacy is essential. Don't interview groups of witnesses, but interview them individually.

DESCRIPTION OF INCIDENT

- 1) The following information is vital!
- 2) Where did the incident occur?
- 3) What equipment, process, tools or materials, chemicals, metals, paint, solvents, etc. were involved?
- 4) What was the nature of the injury or illness?
- 5) What parts of the body were affected (fingers, eyes, respiratory system, leg, etc.)?
- 6) What was the extent of the injury or illness?
- 7) What was done to render assistance to the injured party?
- 8) What was the extent of medical attention required immediately?
- 9) Etc.?

ANALYSIS OF THE INCIDENT (WHY DID IT OCCUR?)

- 1) Describe the events leading to the incident.
- 2) What was the injured doing?
- 3) How was he performing his work?
- 4) What unsafe conditions led to the incident?
- 5) What could have been done to prevent the incident?
- 6) Is this the usual way this job is performed?
- 7) Etc.?

ACTION TAKEN OR TO BE TAKEN

- 1) Describe the actions taken or to be taken to prevent a recurrence of the incident.
- 2) Who is to take the action?
- 3) By what date was or will this be corrected?
- 4) Was the operation discontinued until corrective action was taken?

USE ADDITIONAL SHEETS OF PAPER IF NEEDED TO REPORT THE INCIDENT

